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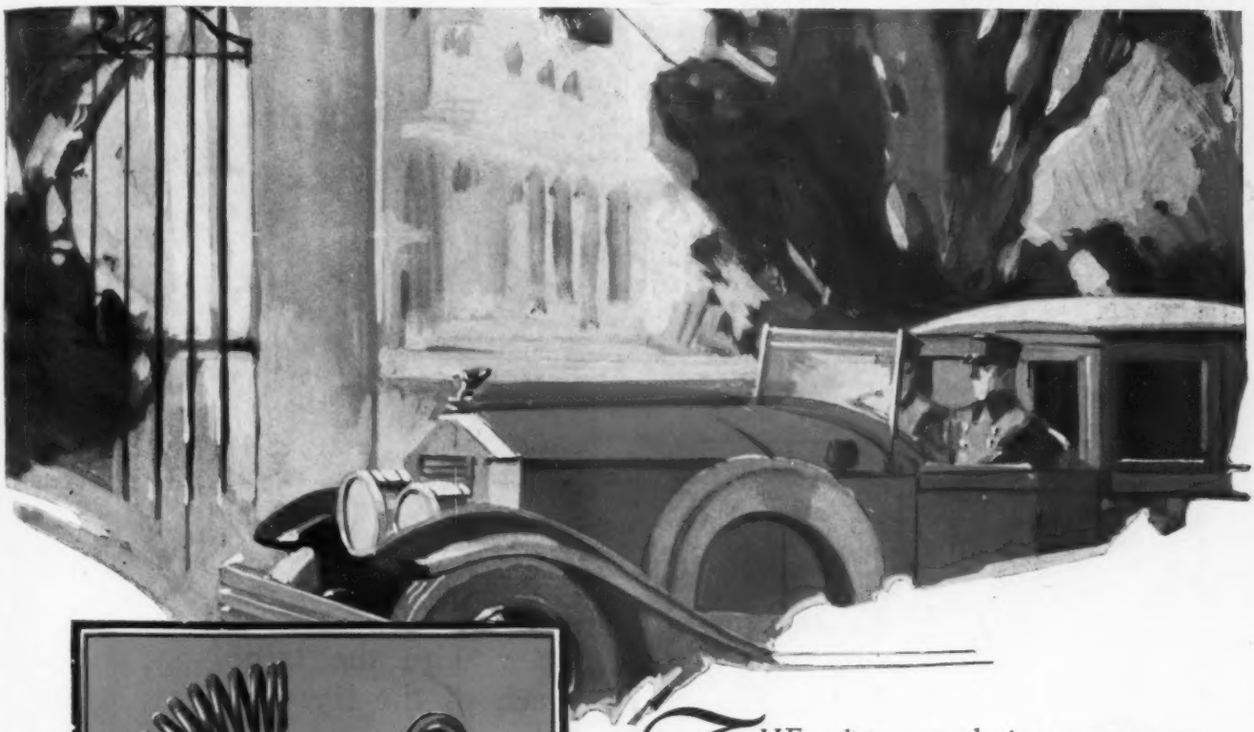

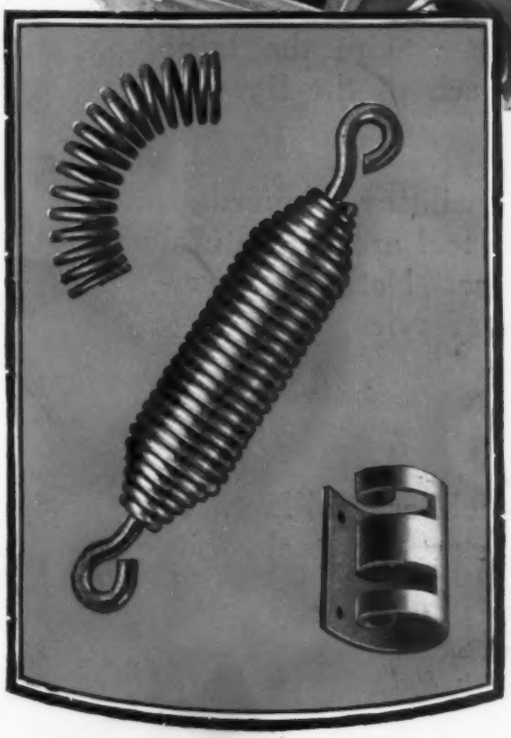

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THE IRON AGE

New York, May 27, 1926

ESTABLISHED 1855 VOL. 117, No. 21

Conveyor System Makes Roof Work

Utilizing Waste Space for Ovens Releases Valuable Manufacturing Floor— Automatic Control

BY ROGERS A. FISKE*

CAN the roof of the plant be converted into valuable manufacturing space? This question was answered in the affirmative by the Simmons Co., New York, the largest manufacturer in this country of metal furniture, with regard to its large Kenosha, Wis., plant.

Drying ovens, no matter for what purpose they are used, are bulky, and cover a large floor area in manufacturing plants which have to use them. Appreciating this fact, the Simmons Co. engineers have so changed the design and operation of the ovens at the Kenosha plant that 80,000 sq. ft. of floor space has been released for other manufacturing purposes. This was accomplished by the installation of a conveyor and elevator system, which made feasible placing ovens on the roofs of six-story buildings, and also through the redesigning of the ovens so that the drying time was reduced from 4 hr. to 1 hr. 20 min.

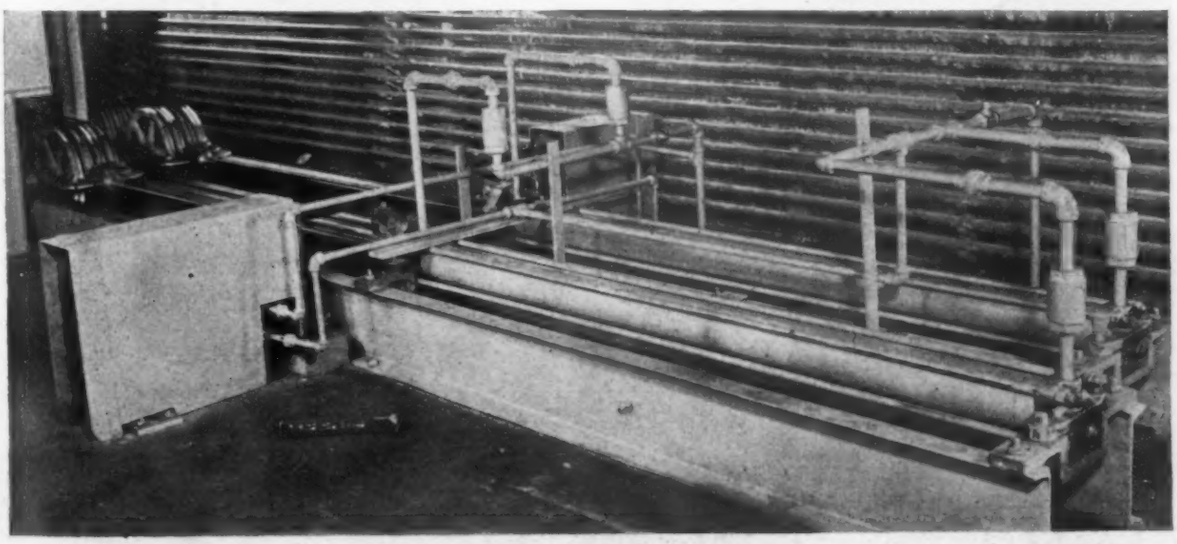
The old ovens were simply long insulated passageways, heated to a temperature of 200 deg. Fahr. by means of steam coils, and opening at both ends. The procedure followed in loading was to throw open the end doors and push in, by hand labor, a number of loaded trucks. As the ovens cooled off greatly during the period of loading and unloading, much valuable heat was lost. The air in the ovens was recirculated without due regard for its degree of vapor saturation. A further disadvantage of this arrangement was that the ovens had to be located on the operating floor, that is, on the same level with the paint vats and drip racks, for the reason that the newly loaded trucks were moved by hand.

The most important feature of the new layout centers around the conveyor system, by means of which it became possible to remove the ovens from the operating floor to the otherwise wasted roof area. A reduction of the drying period, through improved oven design, resulted in speeding up production. Thus a large floor space was released, for conversion either to additional painting units or to other manufacturing uses.

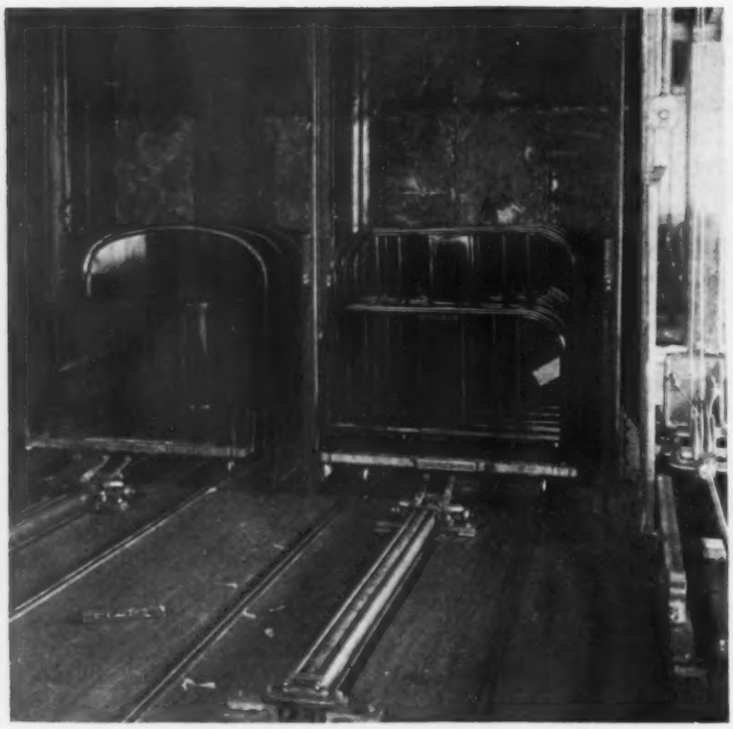
The conveying equipment, largely of special design, is actuated by standard units made by the Oilgear Co., 655 Park Street, Milwaukee. The entire system is synchronized so that parts in process of being painted move through the departments in an uninterrupted stream. Inasmuch as one unit is essentially a duplicate of another, only one unit in the bed finishing department will be described.

When the raw, or unfinished, steel-bed ends are delivered to the paint department each piece is suspended from a hook on an overhead conveyor. As a bed end reaches the dipping tank it is removed automatically from the conveyor, dipped and suspended

*Western editor, THE IRON AGE, Chicago.



Elevator Cylinders Are Equipped With Oil-Cylinder Operated Latches Which Hold the Elevators in the Up Position



Elevators Are Loaded by Means of Oil Cylinders Which Are Controlled from the Main Cam Shaft

from a second conveyor over the drip pan. The sag marks are brushed off by hand and, after a few minutes of air drying, the part is removed by hand from the conveyor to a light steel truck.

All Movements Are Synchronized

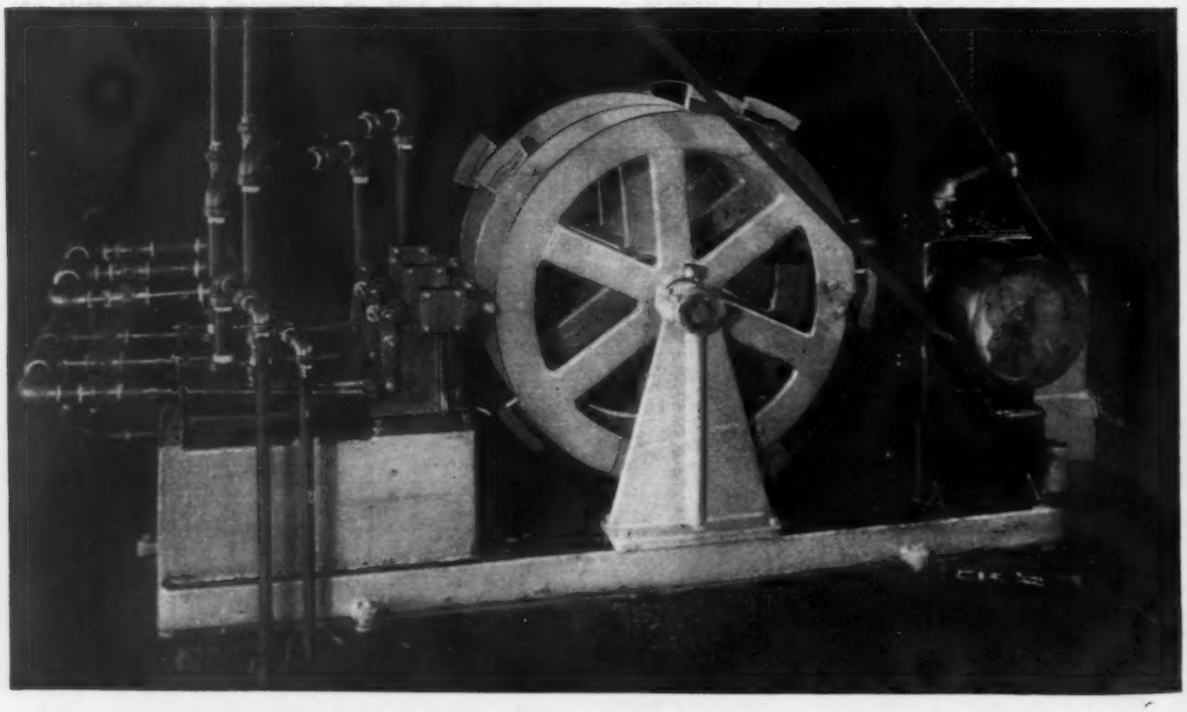
After the truck is loaded it is pushed a short distance to a track, in the center of which is a loading cylinder. This, an Oilgear Co. unit, consists of a horizontal, double-acting hydraulic cylinder, the piston of which is actuated by oil under pressure from a central pump and under the control of a cam-operated four-way valve. In this way the motion and timing of this cylinder is synchronized with the elevators and conveyors, which will now be listed in the order in which they operate as this truckload of bed ends goes through the drying process.

At a predetermined time the piston in this cylinder moves forward and a dog on the end of the piston rod engages the frame of the truck, pushing it onto an elevator platform. After a few seconds delay the loaded elevator is moved up, by means of a cable which passes over two sets of sheaves and is attached to another hydraulic cylinder. The elevator stops at the level of the floor of the drying oven, which is located on the roof of the building.

There a pusher conveyor, actuated by another cylinder, moves back over the elevator floor, engages the truck just brought up, and in moving forward pushes the truck from the elevator, advances the entire line of trucks in the oven, and at the same time moves the truck at the discharge end of the oven onto an elevator which has been previously brought into position. The charging elevator then returns to the lower level and, a few seconds later, the elevator at the outgoing end of the oven returns to the operating floor level and an unloading cylinder is automatically operated to remove the truck from the elevator platform. In this way the bed ends are returned to the paint floor for either the second or the final coat, as the case may be.

Oil, under pressure, is furnished to the cylinders by an Oilgear belt-driven, constant-pressure oil pump rated at 4000 cu. in. per min. at 750 r.p.m., or 67 cu. in. per second. Pressures up to 1000 lb. per sq. in. may be obtained and the delivery of oil is automatically controlled. Full volume of oil is delivered up to maximum pressure and, when the resistance met exceeds the maximum pressure, the volume of oil delivered drops to just enough to maintain maximum pressure. This pump cannot be overloaded, for the reason that, when the maximum pressure is reached, the stroke of the pump is automatically cut off.

Oil, under pressure from the pump, is delivered to



Oil Pump and Cam Shaft Are Belt Driven. The four-way valves are actuated by the cams

Several Seconds After the Elevators Return to the Operating Floor, Oil Cylinders Push the Trucks from the Elevator Platform

three four-way valves, which are operated by three cams mounted on a belt-driven shaft. One valve and cam control the movement and timing of the pushers which load and unload the elevators when in their down position. The second valve and cam control the up-and-down movement of the elevators, and the third valve and cam actuate the push conveyor in the oven.

The duty cycle of the cams is 4 min. per revolution, that is, 1 sec. equals 1.5 deg., or 1 deg. is equal to 0.666 sec. To follow through a complete cycle, we will start with all valves in the neutral position and designate the cams as Nos. 1, 2 and 3. The loading or No. 1 cam first comes into play, moving the valve piston so as to discharge oil under pressure to the elevator loading and unloading cylinders. Thus the elevator at the ingoing end of the oven is loaded and the elevator at the outgoing end is unloaded, this operation taking place at the paint floor level. As No. 1 cam rotates further, the piston rods of the loading cylinders are drawn back into the cylinders and, with a further rotation of the cam, the valve is forced into its neutral position, where it remains throughout the remainder of the revolution.

A short interval after No. 1 valve goes into neutral, No. 2 cam actuates its valve, causing the two elevators to rise and stop at the oven floor level. This cam then returns No. 2 valve to neutral and holds it there until the oven conveyor or No. 3 cam and valve have operated the pusher cylinder, which unloads the elevator at the incoming end, advances the line of trucks in the oven and loads the elevator at the outgoing end. No. 3 valve then goes into neutral and No. 2 cam operates No. 2 valve, to allow the elevators to return to the paint floor level. This completes one cycle.

Operations are so timed that, when any valve is feeding oil to any of the cylinders taking oil through it, the two other valves are in neutral. There is always time lag between succeeding operations, to avoid difficulties arising from belt slippage, unequal resistance to the flow of oil in lines of unequal length and the variations in the fluidity of the oil.

Each elevator cylinder is provided with a safety latch which operates automatically to hold the elevator at the top of its travel. Remote control push buttons, located at convenient places, provide a means of stopping the motor which drives the oil pump and cams.

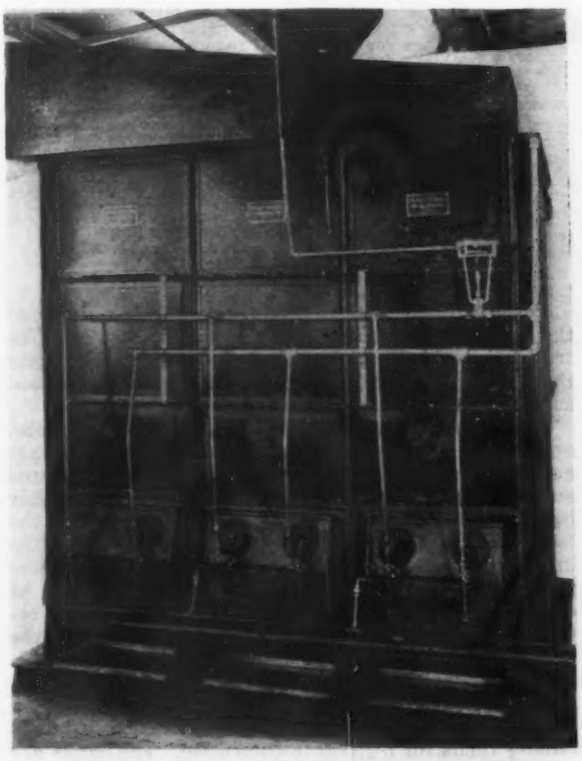
Design and Heating of Ovens

Oven design and method of heating are also of interest. Air is drawn from the paint room at about 70 deg. Fahr. by a motor-driven, American Blower Co. fan, which discharges into the top section of a four-pass, oil-fired heater. The heater units are made of sheet metal and are surrounded by the products of combustion, the flow of air being counter-current to that of the gas in the heater. Air leaves the heater at about 600 deg. Fahr., and is discharged to two distributing boxes placed on the oven floor near the unloading end. The hot air travels to the charging end of the oven and is withdrawn by a fan at that point after it has cooled to about 200 deg. Fahr. The flow of air through the oven is opposed to the movement of the product.

Each heater unit, made by the McCam-Harrison Corporation, Cleveland, is divided into two sections, and each section is fired by two oil burners. Fuel oil, stored at the power plant, is pumped, under 45 lb. pressure, to a small open tank in which the oil level is controlled by a float valve. The oil flows by gravity to small chambers, to each of which are connected two burners.

Compressed air at 80 lb. pressure is reduced to about 11 lb. and stored in a small tank near the heater. The burners are connected to this tank and are so designed that the flow of this low-pressure air through the nozzle creates a vacuum and induces the proper amount of oil up to the burner tip.

A regulator made by the Foxboro Co., Foxboro, Mass., and attached to a thermometer bulb placed near the center of the oven, controls one burner in each heater section, in this way holding the oven temperature within predetermined limits. This regulator operates by cutting in or off the low-pressure air supply which induces the flow of oil to the controlled burner.



Two Burners Are Mounted at Each Combustion Chamber. One burner of each pair is under automatic control and cuts in and out, depending upon the temperature in the oven

Steel Bookings Gain in May

Orders Show Upturn and Basic Industrial Conditions Are "About as Good as They Have Ever Been," Says Judge Gary in Address to Institute

THE soundness of present business conditions and the recent favorable turn in steel bookings were emphasized by Elbert H. Gary, president of the American Iron and Steel Institute, at its twenty-ninth general meeting at Hotel Commodore, New York, May 21. The importance of better merchandising in the steel industry was stressed by Eugene G. Grace, president Bethlehem Steel Corporation, in an address at the banquet. The program of the technical sessions embraced two papers on open-hearth furnaces, and papers on steam power stations, wrought iron, coke testing and reinforced concrete. There were prepared discussions on each paper. The attendance at the banquet was 1355.

THE address of Judge Gary, delivered at the opening of the meeting Friday morning, was divided into two parts, one dealing with labor and the other with business conditions. His remarks on the business situation follow in toto:

Corporation Figures on Bookings are Encouraging

"It is useful and interesting to know accurately and to learn facts relating to present conditions in any line of industry; all would be still better pleased if it were practicable to ascertain in advance what is going to happen in the future. The first is not difficult. The second is impossible, and we are left to mere conjecture, which must be based on past history, on existing circumstances and on the fundamentals on which business, present and future, is founded.

"Speaking of the iron and steel industry and confining the subject to the United States Steel Corporation, which is more or less indicative of the general steel industry in this country, in the following figures will be found evidence bearing upon business conditions:

	Tons per Day
New bookings for the current month	30,300
New bookings for same period last month	29,600
New bookings for same period last year	18,900
New bookings from Jan. 1, 1926, to date	38,700
New bookings from Jan. 1, 1925, to corresponding date last year	41,100
New bookings during the lowest consecutive five months in the history of the corporation	7,650
Shipments for the current month	45,200
Shipments for same period last month	47,900
Shipments for same period last year	43,100
Shipments from Jan. 1, 1926, to date	49,500
Shipments from Jan. 1, 1925, to corresponding date last year	47,000
Shipments during the lowest consecutive five months in the history of the corporation	18,100

"The basic industrial conditions of this country at the present time, taking into account all that could be truthfully said for and against, are very much better than on the average, and on the whole about as good as they have ever been, perhaps better.

"We are at peace with all the nations of the globe, and this is likely to continue. Labor conditions are generally peaceful and quiet. Labor is well treated and is appreciative. The attitude of the present labor leaders, so-called, is much better than it has been the larger part of the time during the past 25 years. The intention and effort of employers towards employees are considerate and just. The same may be said of employees toward employers. Harmony prevails between these two interests, which is essential to the progress and prosperity of both, and it is expected this will continue. Money is plentiful, the per capita circulation is very large, interest rates are low, and every responsible, worthy applicant finds no difficulty in obtaining funds for legitimate enterprise. The banks are strong and well managed, the bankers are fair and accommodating and have the full confidence of the general public. The people are at work; they are disposed to economize; they are, in the main, sober and law-abiding, and not inclined toward extravagance, although there are striking exceptions manifested in some localities. As a rule, wages are fair and reasonable, though in certain lines are outrageously high. The law of supply and demand will sooner or later bring these matters to a just and proper regulation.

"The Governmental administration, the disposition of the Congress of the United States, and the attitude of public officials throughout the country generally are much better than they were in past periods; and they are to be commended.

"From the crop outlook, according to latest advices, we now expect a net total result that will demonstrate more conclusively than ever before how rich, in resources on hand and in future prospects, this country really is.

"The climate of the United States is superior, and the average health of the people is good and improving.

"It may justly be said that a large majority of the people of the United States are studious, industrious, progressive, consistent, law-abiding and friendly toward all the peoples of the world; and they have great reason for gratitude toward a merciful Providence.

"It is up to all business men to appreciate what is offered to us and to do our full part in maintaining satisfactory conditions."

"We Can Be Better Merchants"—Grace

"HAVE we handled the commercial end of our business as well as the manufacturing end?" This question was put to the members of the institute by Eugene G. Grace, president Bethlehem Steel Corporation, in an address at the banquet. Between $4,000,000,000 and $5,000,000,000 is invested in the steel industry in this country, he said, but annual earnings are only 4 or 5 per cent on the capital stock. Against that the automobile industry, for example, is making 10 to 25 per cent a year. "It is paying its stockholders what we ought to be paying ours, at least in part," declared Mr. Grace. There is no necessity for apologizing for profits. Quoting Owen D. Young, chairman of the board General Electric Co., he said, "Profits are the motive power of industry." Despite the propensity of governmental bodies to inquire into the earnings of industries, it is far preferable to be investigated for profits than to be pressed by stockholders for not making profits.

The steel industry has excelled in perfecting its manufacturing processes. It can, and should, be a better merchant—within the law, Mr. Grace asserted. It is through improved merchandising and not through wage reductions that the road to profits lies. Fundamental in our present prosperity, asserted Mr. Grace, is the prosperity of the worker.

Brisbane Urges Liberal Wage Policy

"From the last war we learned that it pays to pay men well," said Arthur Brisbane, well-know publicist,

who was another after-dinner speaker. "To make money, spend money; to get money, give money," he continued in his epigrammatic style. "We can't reduce wages, but we can increase them." If wages are raised, he pointed out, the people will have more to spend and it will then be possible to raise prices of steel.

"We haven't begun to touch the prosperity of this country," declared Mr. Brisbane. "There is no trouble with production; the trouble is with distribution." By distribution Mr. Brisbane was referring to the distribution of wealth or buying power. In this connection he said, "The nation needs money spent as much as land needs water."

Nationalization Propaganda Disturbs British Industry

"So long as trade union leaders seek nationalization of industries, just so long will the labor problem of Great Britain remain unsolved and unsolvable," said Viscount William H. E. W. Ednam, recently a member of the British Parliament and identified with numerous large English industries, including the Earl of Dudley's Round Oak Works, Brierley Hill, England, a large iron and steel company of which he is chairman. British employers, he declared, are wholly in sympathy with the legitimate aspirations of labor. They desire to pay as high wages as those paid in America, provided labor in return gives a full day's work. He called attention, however, to the difficulty of doing this so long as British manufacturers must sell their products in competition with those of Continental plants employing workmen at much lower wages and longer hours.

As regards cheaper production the British have much to learn from the United States in modern up-to-date plant and labor-saving equipment, Lord Ednam added. But whereas there is a labor shortage in the United States, there is a surplus in Great Britain. More labor-saving equipment would merely put more English people out of work, he said.

Data Relating to Basic Open-Hearth Steel Practice

BY AMBROSE N. DIEHL

THE primary object of the tests discussed in this paper was the development of data for this company's information and to further economic production as well as to develop, if possible, more accurate methods and better quality of product. While the data collected apply principally to the practice from furnaces using pig iron made from Lake Superior ores, yet the principles are such as may be applied to most operations, and in fact cover 75 to 80 per cent of the steel produced in the United States.

A number of conflicting results led to a decision several years ago to collect data from a number of open-hearth steel heats, taken with the greatest precision and to the fullest extent within our knowledge. Having in the Duquesne Works of the Carnegie Steel Co. a plant of 32 open-hearth furnaces, a competent squad of 20 experienced and scientifically trained men in the experimental engineering department, equipped with the best instruments of precision obtainable, a fully equipped chemical laboratory for metallurgical work and a thoroughly experienced operating force, this company felt that the data obtained would be as accurate as could possibly be collected.

In addition to the records and analyses, graphic charts have been prepared and tables and various element balances compiled, together with actual practice results on coal, recarburizers, alloys and some conclusions drawn as to the problematical action of the different metalloids. It is rather the purpose of this paper to submit the data and information as outlined, rather than to express different conclusions, which necessarily would not be applicable when local conditions and materials were taken into consideration. The investigations were conducted on furnaces of rated capacities varying from 50 to 75 tons.

The main part of the paper, which covers with the charts and tables, 59 printed pages, discusses in detail the construction of the open-hearth furnaces, the type of heats investigated, the method of testing the metal, and the presentation of results which are given in 19

President Gary's Views on Business and Labor

On Business Conditions

THE basic industrial conditions of this country at the present time, taking into account all that could be said for and against, are very much better than on the average, and on the whole are about as good as they have ever been, perhaps better.

New bookings for May have been at a daily rate of 30,300 tons, compared with 29,600 tons daily last month and 18,900 tons daily in May of last year.

New bookings of the United States Steel Corporation since Jan. 1 have been at the rate of 38,700 tons daily, as compared with 41,100 tons of bookings daily during the corresponding period in 1925.

Shipments of the Steel Corporation for the same period this year were at the rate of 49,500 tons daily, compared with daily shipments of 47,000 tons in the same period of 1925, showing a gain of 5.3 per cent.

On Labor Conditions

IT may and should be said that the employers in the United States generally stand for fair and liberal treatment of employees. They believe in the open shop, which permits a man to work whenever and wherever he is disposed and can agree with the employer. They insist labor should always receive proper and adequate compensation, depending on the financial ability of the employer and the results of the business. * * *

We do not believe he (the employee) should be entitled to a voice in the management of the employer's property or business unless he has a pecuniary interest and corresponding responsibility.

It may truthfully be said that labor generally in the United States is well cared for and is contented. In some lines or places it is overpaid; in some instances perhaps underpaid, though it is hoped and believed such cases, if any exist, are exceptional and will be rectified.

MR. DIEHL has had a long career as an operating official, and his abilities were recently recognized by his appointment as operating vice-president of the Carnegie Steel Co., in charge of the plants in the Pittsburgh district. He was graduated from Pennsylvania State College in 1898 and entered the employ of the Carnegie Steel Co. in 1899 as a chemist in the laboratory at the Duquesne Works. After seven months he was transferred to the blast furnace department of the same plant and six months later was made assistant blast furnace superintendent. In October, 1901, he was made superintendent of the blast furnace department and served in that capacity until October, 1915, when he assumed the position of assistant general superintendent of the Duquesne Works and blast furnaces. A year and a half later he was appointed assistant to the operating vice-president, with headquarters at the general offices in Pittsburgh. His appointment as operating vice-president came in 1925.

tables with accompanying charts, each table and chart representing one heat. There is also a discussion of the action of metalloids in the furnace and the addition of alloys.

One section is devoted to the electric furnace practice which is carried out at the Duquesne Works by the duplex process in which part of the finished product of an open-hearth furnace, while still in the molten state, is transferred to a 20-ton Heroult electric furnace.

Summary

The outstanding features of the investigations are summarized by the author in part as follows:

In conducting investigations on open-hearth furnaces, too much care cannot be exercised in the weighing, sampling and analyzing the various materials entering and leaving the furnace.

The method for obtaining the total sulphur content of fuel gas was developed and is described. The sulphur combined as gases is absorbed by putting the sample through bromine water and the sulphur suspended in the gas in a solid state is separated from the gas by glass wool in the silica sampling tube through which the sample is drawn. The problem of sulphur elimination has not been dealt with in the present paper, as the intention is to deal with this particular feature in a subsequent paper.

The addition of alloys is discussed and the metallic efficiency obtained during additions is given. In order to avoid excessive loss, particular care must be exercised only in the case of the readily oxidizable elements, such as chromium and vanadium.

The method for quickly calculating the amount of ore and limestone which should be charged for a heat of open-hearth steel is included, and a comparison is given for several different types of heat between the amounts actually added and those required by the method of calculation proposed.

Discussion

In his discussion of Mr. Diehl's paper, Vincent J. Pazzetti, superintendent open-hearth department, Saucon division, Bethlehem Steel Co., Bethlehem, Pa., said that the real value of an undertaking of this kind, which contains much accurate data of physical and chemical observations, can only be obtained by intensive study of each individual heat followed by a comparison with every other heat. From these comparisons, he said, no conclusions should be drawn except after most careful study, and these conclusions should be cautiously stated upon the possibility that not all of the circumstances have been detected and weighed.

One of the serious handicaps, he said, to a thorough knowledge of the actual happenings in the manufacture of open-hearth steel is the enormous number of factors involved which vary from heat to heat with the nature of the available raw materials and of the desired finished product, as well as with the age and condition of the furnace.

He said further:

"Heretofore, detailed information over the wide range of possible conditions has been available from observations made on one or two heats only. As an example of such complete information I have in mind the very comprehensive paper by Messrs. Keats and Herty on the 'Elimination of Metalloids in the Basic Open-Hearth Process,' presented at the February, 1926, New York meeting of the American Institute of Mining and Metallurgical Engineers. These observations were made on a 110-ton heat of simple steel made at Bethlehem Steel Co.'s Lackawanna plant. This heat finished to an analysis of 0.37 carbon, 0.61 manganese, 0.014 phosphorus, 0.021 sulphur, 0.081 silicon. All of the heats reported by Mr. Diehl were considerably softer than the Lackawanna heat, and none of them used as little pig iron. In the latter heat there was no run-off slag and in other respects there were differences in operation.

"This series embraces grades of steel running from 0.226 to 0.07 carbon and should form for many lines of inquiry a sufficiently complete series from which to draw valuable conclusions concerning the manufacture of basic open-hearth steel in these softer grades.

"Mr. Diehl refers to the practice of oxidizing the bath until the carbon content is reduced to 0.1 per cent. This practice, while satisfactory and economical for certain types of steel, would not be very satisfactory or economical when the product desired is a low manganese and low silicon steel with high carbon content, and from such steel a different set of results would be obtained.

On Reducing the Manganese Content

"Again Mr. Diehl speaks of reducing the manganese in all heats to a range between 0.10 and 0.20, which we assume is on heats where no run-off slag is required. In this connection my colleague, Mr. E. A. Wheaton, in 1920 presented a paper before this institute on 'The Use of High Manganese Iron in Basic Open-Hearth Practice,' in which the average residual manganese in the heats reported by him was 0.34. For reasons cited in that paper, a number of open-hearth plants find that it would be unsatisfactory and uneconomical to set a rule to reduce the manganese in the bath to below 0.20 per cent.

"In the paragraph referring to the use of 80 per cent ferromanganese as an alloy it is indicated that under certain circumstances this alloy when added in the bath has a higher efficiency than that obtained when added in the ladle. I cannot say that my experience coincides with my interpretation of this statement.

"I am much interested in Mr. Diehl's paragraphs concerning formulae for the calculation of the charge. I believe that familiarity with these formulae would be beneficial to open-hearth melters and superintendents generally because the study of the subject along the

lines followed by Mr. Diehl will be sure to open up new viewpoints.

Skilled Operator Needed on All Heats

"In the comparison of calculated results with actual quantities of ore and limestone sufficient discrepancies are indicated to demonstrate the necessity of supervision of a skilled operator through the melting of each heat so that he can observe and assign correct values due to the conditions present at the time, which vary between furnaces and from heat to heat in the same furnace.

"The ability to size up correctly and allow for these varying conditions is a true test of a steel melter's ability quite as much as the test mentioned by Mr. Diehl, which says ability lies 'in the frequent reproduction of conditions unfavorable to oxidation and therefore conducive to highly efficient alloy additions.'

"If it is desired to discuss the economies of steel manufacture, the history of every heat of steel should deal with the yields from these heats and the causes for rejections. No study of a heat of steel is complete and satisfactory unless it contains not only the manufacturing data but, quite as important, the qualities of the steel produced, as represented by the surface and interior conditions of the product itself."

Comparison of Open-Hearth Furnaces of Various Sizes

BY STEWART J. CORT

IN making a survey of the sizes and operations of different furnaces, there is found to be such a wide variation in tonnage produced and in costs even on furnaces of equal capacity, said the author, that it is impossible to make an intelligent comparison unless the operating details of individual plants are taken into consideration. It will, therefore, be necessary to briefly point out the basic operating conditions that must be evaluated when making a comparison.

The canvass made by the author has brought out that practically all operating superintendents are thoroughly conversant with existing variations in the best open-hearth practice. There are three things that directly affect open-hearth production and costs irrespective of the size of furnace which are: Physical layout, materials used and grade of steel manufactured.

Under physical layout, the author discusses as the principal causes of delay: Stocking and charging, casting, gas producer location and flue layout, furnace rebuilding and repairs and water. Under materials used, he discusses: Pig iron, scrap, limestone, ore and fuel. Under grade of steel manufactured, he gives a nominal rating of various sizes of furnace capacity, including the rated hearth area and weight of heats tapped for each one. There is an interesting discussion on the tons of steel produced per thousand square feet of area per hour.

Taking up the subject of "cost above net metal," he says this is a better figure to use for comparative purposes than total conversion costs, as it eliminates largely the variation due to different percentages of pig iron and scrap charged and also variations in the costs of these commodities. The cost of construction of furnaces of various types is given in detail, and the paper concludes with a discussion of the size and type of furnace to select for various purposes.

In summarizing the results of the canvass, Mr. Cort says that there is no reason why as good steel cannot be made in a large furnace as in a small one. The saving in man power in the operation of the large furnace is an important item, as more tons are produced per man with the accompanying lower labor costs. From the standpoint of the capital invested, the 100-ton stationary furnace is the most economical to build and gives the most satisfactory results, when the operation calls for the use of 40 to 65 per cent hot metal.

The large tilting furnace, while having the higher initial cost, can more than offset this by the saving in operating costs, provided it is possible to utilize it to the best advantage either on a high steel scrap charge varying from 60 to 80 per cent scrap, or using it in the duplex operation. The large tilting furnace is best suited for a large steel plant which is equipped with sufficient soaking pit capacity to charge 250 to 300 tons of ingots at a time, while a small steel unit can be more thoroughly operated if the ingots are received in small lots.

The large furnace, while it is built to produce at a lower cost, will not be able to entirely displace the 60 to 75-ton capacity in specialty shops, that is, shops making a wide range of alloy steels for the merchant trade where only small tonnages are required of a given composition.

Discussion

The blast furnace is the first step in making good steel, said James L. Hyland, superintendent open-hearth furnaces, Illinois Steel Co., Gary Ind., in discussing Mr. Cort's paper. The charge of the open-hearth furnace should be carefully analyzed to insure melting at the proper carbon and with the proper amount of fluxes. This removes the handicap of adding raw materials in the ladle. Close analysis of the charge is becoming more and more essential because much of the work of steel plants is specialty business, calling for rigid adherence to specifications.

The radiation from a furnace is about 60 per cent

MR. CORT is superintendent of the Saucon division, Bethlehem Steel Co.'s plant at Bethlehem, Pa., a position he has held since 1922. *He was graduated from Lehigh University in* 1906 *with degree of metallurgical engineer, and was first employed in the Duquesne Works of the Carnegie Steel Co., remaining there from* 1906 *to* 1916. *From* 1909 *until* 1916 *he was assistant superintendent of the open-hearth department. He went to the Cambria Works of the Midvale Steel & Ordnance Co. in* 1916 *as open-hearth superintendent, but within a few months was transferred to the Wilmington plant of that company as general superintendent. He took charge of the open-hearth department at the Saucon Works in* 1917 *and in* 1922 *was appointed superintendent of the Saucon plant.*

of the heat input. It is obvious, therefore, that increasing the charge is in the interests of heat conservation, he said, in effect.

Most Furnaces Are Overcharged

"In drawing comparisons to determine the tonnage to be expected from various sized furnaces the hearth area alone does not give a true indication of the capacity, as there is considerable variation in the depth of bath relative to the area in the design of the furnaces. In addition nearly all furnaces now in operation are overcharged, the excess ranging from small amounts to as high as 50 per cent over the rated capacity, thus increasing the depth of bath still more," added Mr. Hyland.

Must Design Large Furnace for Disposal of Flue Gases

"Design of a furnace for large capacities should be made with special reference to the disposal of flue gases, as the velocity and temperature will cause rapid erosion of the brick work in the ends of the furnace unless the passages at this point are large enough to provide an easy exit. Also, constrictions due to valves or small flues which affect the draft throw the furnace off balance by building up a back pressure, causing distortions in the travel of the flame and interference with the proportionate admission of air and fuel, which cannot be overcome by any adjustment of gas pressure or air inlet.

"The relative velocity of gas to air entering the furnace ports is approximately 2 to 1, but when back pressure is built up the furnace man can raise the gas pressure to overcome it, while the air, which is forced in by barometric pressure cannot be regulated in the same way and combustion is retarded, giving a long, misshapen flame," said Mr. Hyland. This overheats the walls and roof and makes the work sluggish. The heats are slow in clearing up and do not purify easily, while the quality of the steel is impaired.

Notes on Coke Testing

BY WILLIAM A. HAVEN

INTEREST in the subject of coke testing seems to be growing rapidly, said the author of this paper, and he referred to excellent work being done by other blast furnace and coke oven operators and by the United States Bureau of Mines. As a contribution to the literature on this subject he gave in detail the results of various methods which have been employed by the Republic Iron & Steel Co. in its effort to obtain blast furnace coke of uniform size and quality.

He stressed the point that the raw material most likely to determine the success of blast furnace operation is the coke, and commented upon the growing willingness of coke oven operators to conduct their practice along lines more favorable to the production of good metallurgical coke. A difficulty, however, is their inability to find out just what kind of coke a furnaceman would like to have because the latter often does not express himself in terms which are related both to blast furnace practice and coke oven practice. The furnaceman rates the coke by its ability to give a smooth working furnace and a good grade of iron while carrying a sufficiently large ore burden to obtain a low coke rate.

The furnaceman profits but little unless he can show the relation between furnace practice and those qualities of the coke which it is within the ability of the coke producer to improve. Mr. Haven said that the determination of such relationship is properly a blast furnace problem and requires primarily a knowledge of blast furnace phenomena. It also requires a knowledge of the properties of coke by which it performs its duties in the furnace, and a means of expressing the degree in which different grades of coke have, or do not have, such properties. In his paper Mr. Haven paid considerable attention to the work he has done in developing satisfactory methods for testing coke with such ends in view.

In commenting on the combustibility of coke and its effect on the driving rate of blast furnace operation, Mr. Haven drew attention to an impressive test made at the Etna furnace at Ironton, Ohio. The coke ordinarily used for this furnace was made in Semet-Solvay ovens chiefly from eastern Kentucky coal, and the furnace at full capacity of the blowing engines made about 300 tons of iron per day. Then the furnace tried some beehive coke from the Toms Creek (W. Va.) district and the results were very bad, the furnace going on higher pressure than the blowing engines could contend with, and none of the usual remedies were successful in loosening it up for any length of time. After a trial of several weeks this fuel was given up and a supply of Pocahontas beehive coke was obtained. To this change the furnace responded quickly, the blast pressure becoming normal and the rate of driving was improved, even over that obtained from the regular coke, so that the month's daily average production rose from a previous best figure of 313 tons to 356 tons.

In another case, at Haselton furnaces, there seemed to be considerable difference in the combustibility of coke made from Freeport coal and from the Klondike mixture. By actual test in a small furnace the number of charges taken at the same rate of blowing was about 10 per cent greater for the Freeport coke. From these experiments the development of a suitable combustion

MR. HAVEN is superintendent of the Northern blast furnaces of the Republic Iron & Steel Co., Youngstown, where he has been since 1918. *Prior to that he was for one year superintendent of the Haselton furnaces owned by the same company. After graduation from the Pennsylvania State College in* 1909 *he entered the employ of the Carnegie Steel Co. in the blast furnace department at Farrell, Pa., later becoming blast furnace foreman at the Farrell and Clairton plants of the Steel Corporation, a position in which he served for five years. Between his connection with the Steel Corporation and* 1918, *when he went to the Republic Iron & Steel Co., he was superintendent of blast furnaces for the Marting Iron & Steel Co. and the Pittsburgh Crucible Steel Co.*

A. E. LINDAU, president American System of Reinforcing and its associated company, the American Wire Fence Co., Chicago, has long been identified with the concrete reinforcing business. For 19 years prior to his becoming president of the American System of Reinforcing in January, 1924, he was with the Corrugated Bar Co., Inc., Buffalo. Mr. Lindau is a graduate of the engineering department of the University of Michigan, of the class of 1900. He was consecutively with the Whiting Foundry Equipment Co., Harvey, Ill., the Wisconsin Bridge Co., Milwaukee, the Chicago, Burlington & Quincy Railroad, and the Rock Island Lines, following which he entered the service of the Corrugated Bar Co., at that time located in St. Louis. Chief among products patented by him was a flat slab construction known as Corr-Plate floors. At the time the company moved its headquarters to Buffalo Mr. Lindau was made Western manager in charge of business in the Middle West. In 1916 he was called to Buffalo to become general manager of sales. In 1918 he became a member of the board of directors, and in 1921 he was elected vice-president.

test seemed to promise profitable results, Mr. Haven said.

Mr. Haven went into detail as to other coke tests, including the use of a tumbling barrel, sizing tests and chemical analyses. Other investigators have previously reported on such tests, but the data sheets which accompanied Mr. Haven's paper will undoubtedly be of interest and value to those, who like himself, are working upon a solution of the problem of more accurately determining the actual value of coke from a furnace standpoint.

Discussion

What blast furnaces need most is a *uniform* quality of coke, whether it is good, bad or indifferent, said M. D. Curran, vice-president St. Louis Coke & Iron Corporation, in discussing Mr. Haven's paper. This is difficult because there is frequently a variation in quality between coals of the same seam, not more than two to three miles apart. The St. Louis Coke & Iron Corporation tests its coke for strength, hardness and brittleness, as well as for specific gravity. By means of empirical formulae the coke is graded according to a conventional scale of measurement.

Coke Tests Should Be Standardized

Coke tests should be standardized as to apparatus, size of sample, units of measurement, etc., said J. C. Barrett, Carnegie Steel Co., Youngstown, in commenting on Mr. Haven's paper. He listed numerous tests for coke, among them the following: Chemical test, sizing test, shatter test, shatter bag test, porosity test, combustion test, abrasion or tumbling test, moisture test, specific gravity.

Reinforced Concrete

BY A. E. LINDAU

FOR all practical purposes it is sufficiently accurate to say that the beginning of the present century ushered in the era of reinforced concrete construction in our country. Cement production has risen from 8,500,000 bbl. per year in 1900 to 137,000,000 bbl. in 1923, an increase of 1600 per cent. From the sales records of the firms specializing in reinforcing products, data has been secured to supply approximate tonnage records from 1900 to 1909, which amounts to 680,000 tons approximately, since which time the records of the American Iron and Steel Institute are available. If we multiply each year's tonnage by the mill price for that year and add about $2 per ton for size extra, we shall have the annual value on a Pittsburgh base and, totaling the annual figures, we find that a total value of $360,000,000 f.o.b. cars, Pittsburgh, has been shipped as reinforcing bar steel, involving a total tonnage of 7,200,000 tons.

The peak production of air-cooled blast furnace slag for all purposes totals 8,000,000 tons per year, of which 40 per cent is consumed by concrete and reinforced concrete structures. At an average price of $1.50 per ton this amounted to $4,800,000 per year. Data are not available, however, whereby even an estimate can be made of the total quantity used since 1900.

If we attempt to obtain a total value of the reinforced concrete structures built, we find that in the absence of adequate statistics on the subject we can approximate the results by analyzing the steel required for various types of structures. We find, for example, that an office building will require reinforcing steel to the extent of about 5 per cent of its cost. In a school building as low as 2 or 3 per cent and, on the other hand, in a concrete bridge 10 per cent of the total cost may be the amount of the reinforcement. By getting an average for the various classes of structures (see Fig. 3), and applying the distribution of tonnage to these classes, a general average can be obtained. By applying this to each year, we find approximately that the total estimated value of reinforced concrete construction other than road construction in the last 25 years was $5,000,000,000.

Advantage of Reinforced Concrete Lies in Economy

While the field of concrete structure in which structural steel reigns supreme is gradually narrowing, still there is quite a wide range beyond the reach of reinforced concrete. No doubt the boundary lines of the field of structural steel will shift from time to time. But so far as we can see at the present time, structural steel will be used for long span bridge construction, buildings over 18 to 20 stories in height, long-span roof construction, i.e., spans over 70 to 75 ft., roofs for auditoriums, train sheds, hangars, etc. Certain types of buildings, such as theaters, club houses and hotels, where it is required to carry the building over large areas, as, for example, ball rooms, dining rooms, swimming pools, etc., the limitation in the design of reinforced concrete structures makes it desirable for engineering reasons to use structural steel.

The advantage of reinforced concrete over structural steel is almost entirely a matter of economy. No claim is made for superiority in fireproofness, permanence or maintenance.

The advantage in cost depends upon the character of the building. For heavy warehouses, especially

where flat slab construction is employed, the saving may be as much as 10 or 12 per cent. In other types the saving may be very much less, but in general the limitation is one of engineering design rather than cost.

Kinds of Reinforcement

Competition has been a big factor in producing a multiplicity of forms of reinforcement, many of them adapted to special uses or conditions, all of them aiming at increased efficiency in function and decrease in cost of construction.

In general, reinforcement may be classified as follows:

Bar reinforcement:
- Deformed bars, 12 types
- Plain bars:
  - (a) New billet
  - (b) Rerolled
- Twisted bars:
  - (a) Cold
  - (b) Hot

Wire products:
- Spirals
- Fabric:
  - (1) Woven wire
  - (2) Electric weld

Sheet products:
- (1) Expanded metal
- (2) Metal lath
- (3) Ribbed lath

Accessories:
- (a) Metal forms:
  - (1) Column molds
  - (2) Metal floor forms
  - (3) Wall forms
- (b) Metal sash
- (c) Spacers, anchors, etc.

Annual consumption at present time of following products:

Spirals	35,000 tons
Wire fabric	100,000 tons
Metal lath	75,000 tons
Metal floor forms	15,000 tons
Bar spacers and supports	2,000 tons

In point of general usefulness and volume of tonnage steel rods or bars varying in size from ⅜ in. to 1¼ in. easily dominate the whole group of reinforcing materials. In this material, the practice of using special sections, now called deformed bars, is the outstanding difference between the practice in this country and the rest of the world. Until the invention of deformed bars, it was common doctrine that a plain bar imbedded in the concrete a certain number of diameters of the bar could not be pulled out without breaking the bar. By a number of extensive tests, this has been found to be optimistic to say the least. When a plain bar has slipped as much as 0.01 in., its maximum bond value is reached and from that point slipping continues at a lower bond value. The deformed bar on the other hand has a higher bond value at a slip of 0.01 in. and continues to increase in value as the load is increased. This advantage in bond value of deformed bars is recognized by standard specifications to the extent of allowing an increase of 25 per cent in the unit bond stress for deformed bars as against plain bars.

Reinforced Structures Resist Quakes

Of all the elements or forces of nature tending to destroy structures, the earthquake is the most severe and difficult to cope with. The severe earthquake in Japan and the disturbances on the Pacific Coast have brought the matter prominently before us. The evidence so far points to the conclusion that reinforced concrete, quite as well as structural steel, will answer the purpose if the design and workmanship are sound and honest.

With regard to the Tokio earthquake, the following summary may be given:

The performance of reinforced concrete under the test of earthquake and fire can only be classed as highly satisfactory. A survey of reinforced concrete construction in Tokyo Prefecture conducted by the Tokio Building Department, under the direction of Y. Nagata, chief engineer, resulted in the following findings:

	Entirely Collapsed	Partially Collapsed	Greatly Damaged	Partially Damaged	Undamaged	Total
Number of buildings	8	11	42	69	462	592
Percentage of total	1.3	1.9	7.1	11.7	78.0	100.0

Regarding the terms "entirely collapsed" and "partially collapsed" there can be no uncertainty. "Greatly damaged" was illustrated by two buildings. The Hoshi Drug Building and the Industrial Club of Japan. "Partially damaged" means without severe damage to structural frame, although the walls may be shattered. Nagata gave me as examples of this classification the following structural steel framed buildings: Tokio Kaijo N. Y. K., Maranouchi, and Yuraku. "Undamaged" includes cases of minor cracking of walls, but no damage to structural frame. The Sumitomo Warehouse illustrates this classification. As stated, this survey includes damage by fire. Warehouses classed as partially collapsed would shift to the undamaged classification were the earthquake alone considered, and there are several other buildings which would be similarly changed.

Reinforcement Requires 900,000 Tons of Steel Yearly

The foregoing gives a fair outline of the development of the concrete industry and its relations to the steel industry. We have seen how the reinforced concrete industry in twenty-five years has grown from insignificance to its present dimensions of about $1,500,000,000 per year. We have seen the demand for reinforcing bars develop from a few thousand tons at the beginning of the century to nearly 700,000 tons last year. We have seen another 200,000 tons per annum develop in wire fabric and sheet products. We have seen slag, a by-product of the steel industry, absorbed by concrete construction to the extent of $5,000,000 per year. These are the figures for the present. What about the future? What may be expected 10 years from now, or 20? The rate of growth in reinforced concrete has been so rapid that it is quite improbable it can continue at the same rate even for another 10 years. Should it do so, the annual demand for bars will then exceed 1,000,000 tons, an increase of 50 per cent, and similarly for the other products, which means that the reinforced concrete industry in 1935 will consume approximately 1,500,000 net tons of bars, wire and sheet products. This, in round numbers and cold type, is what concrete means to the steel makers. It is not all clear gain, for concrete replaces a considerable volume of what would be structural steel construction, but on the other hand, it replaces and supersedes a great quantity of less permanent construction so that on the whole, there is considerable gain.

But mere tonnage figures do not represent all the gain. The consumption of steel is in direct proportion to growth in civilization. The building of permanent durable highways (taking 100,000 tons of reinforcing bars a year) speeds up trade and stimulates industries. In the building of good roads reinforced concrete plays an important part and thus in an indirect manner aids in the development of the steel industry. The two industries are inseparably connected and each aids the other. This is the broader meaning of concrete to the steel maker.

Discussion

The rapid growth of the concrete reinforcing business was amplified in discussions of Mr. Lindau's paper. A discussion by John Havemeyer, president Concrete Steel Co., New York, was read by W. S. Edge of that company. It was pointed out that economical production of concrete bars calls for large rollings. To give the mills these rollings it is necessary for concrete bar dealers to carry large stocks in warehouses so that the steel is at all times available to contractors. Other service rendered by warehouses is the bending of bars, which can be done cheaper and better in the shop than on the job. Incidental uses of steel in connection with concrete construction work are apt to be overlooked, although they are by no means unimportant. Considerable steel is used in forms and mechanical devices for spacing bars on the job call for 3000 tons to 4000 tons of bars annually. Mr. Havemeyer called attention to the growing importance of road-building as an outlet for steel. In some sections of the country 30 tons, or more, are used per mile.

What the concrete bar industry has done in the interests of simplification was among the points em-

(*Continued on page* 1553)

Steel Treaters Expand Activities

Non-Ferrous Field to Be More Extensively Embraced —Spring Sectional Meeting Hears Papers on Rustless Iron and on Heat Treatment of Forgings and Die Blocks

SENTIMENT was unanimous that the spring sectional meeting of the American Society for Steel Treating at Hartford last week, May 20 and 21, was the largest and most successful ever held. Of the registered attendance of nearly 400 there were more out-of-town members and guests than the total registration at previous meetings. Under the auspices of the Hartford chapter, recognized as one of the best in the society, a splendid technical program, with entertainment features, was efficiently and smoothly carried out.

Some new policies were adopted by the board of directors at its regular meeting Wednesday, the day before the technical sessions. The most important of these was a decision to increase the society's activities in the non-ferrous field. This and other details of the board's actions are reported more fully on another page.

The technical papers, which as is usual at such meetings were mostly of a practical nature, are briefly abstracted in the following report. None of them was preprinted, but most of them will probably appear some time later in the society's official journal.

Varied Topics Covered by Technical Papers

THE technical sessions were interspersed with plant visitations, always a feature of these sectional meetings. Six papers were presented at the three sessions on Thursday morning, Friday morning and Friday evening. They comprised a variety of subjects, many of them of a practical nature.

Rustless Iron

Two papers were devoted to rustless iron, and one of them was a valuable contribution to the practical phase of this important subject. Taking as his subject "The Rôle of Stainless Iron and Steel in Industry," Norman L. Mochel, metallurgical engineer South Philadelphia Works, Westinghouse Electric & Mfg. Co., Philadelphia, the author, gives data relative to the physical properties of alloys of varying composition and with varying heat treatment. Particular stress is put upon the elastic limit and impact values. The effect of varying chromium content and of silicon, copper and nickel on the physical properties, the microstructure, the resistance to corrosion and workability of the alloys is discussed.

The group of chromium-iron alloys included in this discussion has a carbon content of not over 0.12 per cent and a chromium content approximating 10 to 19

A Group of Steel Treaters Which Visited the Plant of the New Departure Mfg. Co., at Bristol, Conn. Heat treatment of chrome and other steels is a feature of one large department

per cent. Materials used were in all cases hot-rolled and annealed bars, as received. They included British, Swedish and American products. The paper goes into detail on the physical properties, the tension-impact-hardness tests and the fatigue properties, and contains a discussion of the corrosion and miscellaneous characteristics of these alloys. Voluminous photographs of test bars and microstructures, as well as charts, accompany the paper.

From the data presented, says the author, this group of low-carbon, chromium-iron alloys makes a most interesting and valuable addition to the field of engineering and industrial materials. By reason of patent restrictions and other arrangements, the alloys have been prepared commercially in various grades and compositions. There have been staunch supporters of low chromium, of intermediate chromium, of high chromium content, with and without additions of silicon, nickel and copper. The virtues of some grades have been held up and compared with the vices of others.

The data here presented would indicate that each of the various grades has its use and each may have its shortcomings. A particular grade or composition may serve admirably for one purpose, but might not serve so well for another application as one of the other grades. The careful consideration of each application, the method of fabrication, the physical properties required, the degree of corrosion resistance and the nature of the corroding agent should be given, as each of these matters has an important bearing in the proper selection of these materials.

In the brief discussion which followed, the eminent fairness of Mr. Mochel's paper was emphasized.

Carbon in Rustless Iron

The other contribution to the subject of rustless iron was a paper by Marcus A. Grossmann, research metallurgist United Alloy Steel Corporation, Canton, Ohio, who took as his subject "Behavior of Carbon in a High-Chromium Rustless Iron." This paper was substituted at the last minute for the scheduled paper entitled "Necessary Precautions in the Manufacture of Alloy Steel." A brief abstract of the author's paper follows:

An unusual behavior of carbon was observed in a rustless iron. The material examined was a high-chromium iron of approximately the following composition:

	Per Cent
Carbon	0.08
Chromium	17.50
Manganese	0.35
Silicon	0.75

This material exhibits the properties of an annealed steel when heated to any temperature up to about 1800 deg. Fahr., but when it is heated to beyond 1800 deg. Fahr. and is quenched in water, it loses sharply in ductility without, however, gaining greatly in hardness. It was observed that the material in the hot-rolled or annealed condition consisted of grains of alpha iron with groups of precipitated carbides. When the metal was heated to above 1800 deg. Fahr., the carbide areas became austenitic, and upon quenching became martensitic. Deformation of a polished section showed slip bands in the alpha iron, but the bands stopped abruptly when they reached the grain boundaries of the martensite. (This is shown in Fig. 1.) The hard regions of martensite embedded in the areas of alpha iron would account for the loss of ductility, due to interference with slip.

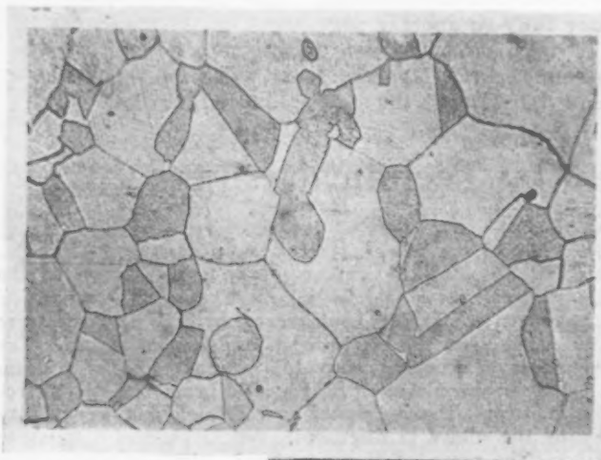


Fig. 1 (Left)—Slip Bands in Alpha Iron, Obstructed by Martensite

All Taken at 250 Diameters

Fig. 2 (Center)—Six Hours at 1900 Deg. Fahr. and Quenched in Water

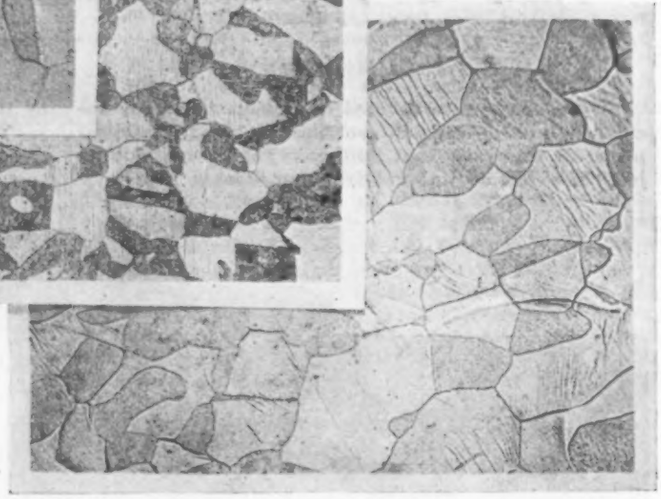


Fig. 3—Six Hours at 2100 Deg. Fahr. and Quenched in Water

Further heating at higher temperatures, however, developed a novel condition. It was shown that the alpha iron and the austenite could exist together at the high temperatures, nearly in equilibrium. Heating for 6 hr. at 1900 and 2100 deg Fahr. showed that the alpha iron increased in amount as the temperature rose. (This is illustrated in Figs. 2 and 3.) The alpha iron grains grow by encroaching into the austenite. This is accompanied by a precipitation of the carbon which had been in solution in the austenite. It is precipitated as minute carbide particles. These particles are believed to account for the irregular course of the slip bands, and some evidence is adduced for this view.

Forging by the Upset Process

A very clear and interesting description of the forging processes used by the New Departure Mfg. Co., Bristol, Conn., in forming ball races and other products was presented by J. C. Kielman, of that company, in

Authors of the Technical Papers

M. A. GROSSMAN

J. C. KIELMAN

N. L. MOCHEL

ALFRED J. PORTER, JR.

a paper entitled "Forging by the Upset Process." By means of numerous slides, the author described in detail the handling of the high-carbon chromium steel, purchased by the company from various steel makers, from the time it reaches the plant until the forgings are completed. The steel used and its peculiarities, as well as the method of forging, are discussed. A portion of the paper is devoted to an explanation of the upsetting process and how it is applied to the manufacture of ball bearing races. Comparisons with other methods are made and the advantages of the method used by the company are discussed. Problems connected with the material which is used in the forging dies and the steels best adapted to these are discussed, and the importance of the heat treatment of the tools is emphasized. The furnaces and the machines used for upsetting forging were discussed so as to clearly explain how they meet the requirements of the job and how their efficiency is maintained. It so happened that, immediately after the presentation of this paper, those who selected the plant of this company for visitation were enabled to depart at once for that plant.

Heat Treatment of Die Blocks

A paper, somewhat in the same field as the preceding, was entitled "Heat Treatment of Die Blocks," presented by Alfred J. Porter, Jr., Heppenstall Forge Co., Bridgeport, Conn. The author discussed the subject under three different heads. Under the first he outlined the development of the drop forge industry, from its beginning to its present day magnitude, and along with this the gradual development of the die block to its present perfection. The second part of the paper was devoted to the various grades of die blocks used today and the various distinct purposes for which they are intended. This also included the recommendation for the heat treatment of the various grades of water-hardening and oil-hardening blocks and the means of correcting various faults in the incorrect handling of blocks by careless workmen, both in the die room, hardening room and the forge shop itself. The latest development in die blocks was discussed under the third head, namely, the heat-treated shoe forgings and heat-treated die blocks.

In this connection, Mr. Porter aimed to prove various economical qualities which the heat-treated die blocks present and made a special appeal that drop forgers seriously consider the advantages of using heat-treated die blocks in preference to the annealed die blocks which later they harden themselves. The speaker said that 20 per cent longer was required over the sinking of an annealed die block but, when sunk, the heat-treated die block requires no further hardening, thus relieving the risk of breakage and distortion in hardening.

A general conversational discussion, made up mainly of questions, followed the presentation of Mr. Porter's paper in which various opinions for and against the heat-treated die block were heard.

Electrolytic Iron or Steel Strip

The relative merits of electrolytic iron and open-hearth steel strip for various purposes were discussed

(*Continued on page* 1547)

J. S. VANICK

JOHN R. FREEMAN, JR.

T. H. WICKENDEN

Stress Stabilization in Sheets

Sheet Steel Executives at Convention Last Week Discuss Also Trade Promotion, Labor, Advertising and Other Topics

THE sheet-steel industry rarely lacks problems, and consequently never experiences a dearth of subjects for discussion at the annual gatherings of the executives of the independent sheet-steel companies. These meetings since their inception in 1923 have been held at Hotel Greenbrier, White Sulphur Springs, W. Va. The fourth annual gathering, held from May 17 to 20 inclusive, brought together the representatives of all except one or two of the sheet manufacturing companies east of the Mississippi and starting on the morning of May 18, their mornings were devoted to listening to papers covering a wide variety of subjects, embracing market stabilization, business fraternity, labor, advertising, trade promotion and many other topics in which such a gathering naturally is interested. Not down on the program were two talks by Charles M. Schwab, chairman, Bethlehem Steel Corporation, who was a guest at White Sulphur Springs. Because they were unexpected they were all the more appreciated.

In the formal addresses, market stabilization and trade extension work were conspicuous. The speakers were very frank in their expressions on both of these subjects. No attempt was made to conceal that the trade extension movement had made little impression so far on the sheet-metal contractors or jobbers, who, of all buyers of sheet steel, have been looked upon as the ones who were most to be depended on for the success of the movement, the aims of which briefly are, the regaining of lost markets, the maintenance of existing ones and the development of new outlets.

There was the same openness of admission that market stabilization was still unachieved, one speaker pointing out that in the face of a record volume of business, as expressed by the shipments, the gain in income for the industry in 1925 over 1924 had been only $20,000,000, while if prices of 1924 had been maintained through last year the gain would have been more than $50,000,000. The difference was charged to the scramble for business backlogs, and there was no question as to the proper interpretation of what the speaker meant by his business backlog phrase.

All of the papers were of high literary merit, and if any criticism is to be offered of them it is that some of them, notably on trade promotion, were negative in tone, stressing more strongly the success that had attended other industry trade extension campaigns than in giving some positive suggestions as to how the sheet steel trade extension plan could be helped.

In intervals between sessions there were some suggestions that fewer papers might be considered by those who have charge of the programs. In nine hours, three hours each morning, no fewer than 14 papers, some of them of great length, were presented, and there was discussion of none of them.

But all who attended the meeting expressed satisfaction over having been present. The opportunity to meet socially and to pursue golf was lauded for promoting business fraternity, and a better understanding among those engaged in the same business. With regard to the trade extension campaign, which is one of the occasions for the meeting, it was generally felt that it was making progress, and there was a realization that in view of the time that other similar movements had taken to produce tangible results, too much could not be expected from the sheet-steel campaign.

G. H. Charls, president United Alloy Steel Corporation, Canton, Ohio, was chairman of the first day's business meeting, complete telegraphic account of which was published in THE IRON AGE of May 20. At the session of May 19, Henry A. Roemer, president Superior Sheet Steel Co., presided, and Walter W. Watson, vice-president in charge of sales Youngstown Sheet & Tube Co., Youngstown, Ohio, was in the chair on May 20 and qualified as a worthy successor to Simeon Ford. On the program for the final day was an address, "Optimism or Pessimism—Which?" by a speaker to be selected. There was disappointment that this had to be omitted, as the speaker was to have been James A. Campbell, president Youngstown Sheet & Tube Co.

Henry A. Roemer, Superior Sheet Steel Co.; J. L. Grimes, Wheeling Steel Corporation; Paul F. Voigt, Allegheny Steel Co.; E. L. Wetstein, Michigan Steel Corporation; Charles R. Hook, American Rolling Mill Co., and Walter C. Carroll, Inland Steel Co., took home the golf prizes.

Describe Results of Trade Extension Efforts

THE efforts of the Sheet Steel Trade Extension Committee are having only an indifferent response, if not, indeed, actual antagonism from the sheet metal contractors, according to C. L. Bailey, field representative of the committee, who presented the first paper of Wednesday's session, "Awakening Sheet Steel Consciousness in Tomorrow's Men." His contacts with them, however, had convinced him that the work had created interest and that the way was open for conversion and suggested a feasible plan of action. Education of the sheet metal contractor in sound methods of merchandising, which would enable them to secure a fair margin of profit was one thought and another was the recruiting and training of young men, now disposed toward the white collar jobs, to swell the thinning ranks of sheet metal workers.

Making Merchants of Sheet Metal Contractors

"The unfortunate element in the situation," said Mr. Bailey, "is not that the public does not appreciate and understand the uses of sheet steel, but the fact that the sheet metal contractor, who is the connecting link between the seller and the consuming public, not only does not understand and appreciate sheet steel, but in many instances is indifferent, if not antagonistic to its use. No amount of advertising or sales effort can increase the market for sheet steel if the sheet metal contractor assures the prospective buyer that

prepared roofings are more economical and serviceable, and that is what many of them are doing today.

"The average sheet metal contractor was first a mechanic and the majority, even though they may have engaged in the contracting business, still are mechanics, and many of them are neither merchants nor business men. Their business has been unprofitable, not so much because of the narrow margin of profit which sheet steel offers, but because they know little about overhead operating costs, estimates and labor costs, and, as a result, they have entered into competition with each other, which has not only been ruinous to themselves but to the trade as a whole. A solution may be found in the preparation for him of a simple method of bookkeeping and cost accounting that he may be able to determine accurately his costs when formulating estimates for a job. Such a plan worked out successfully in the plumbing and heating industry and made merchants out of plumbers.

Need of Training Sheet Metal Mechanics

"If we are successful in creating a greater demand for sheet steel, care should be taken that the demand is not smothered by increased labor costs, due to a shortage of men to perform the increased work. There is a scarcity of skilled tradesmen in almost every community in the United States and consideration must be given the training of men, as immigration can no longer be depended on to fill the ranks depleted by death among American workmen and the fact that young men are seeking the office positions and professions.

"There seems to be but one method to increase the available supply of skilled labor and that is through a return to the apprenticeship system in the building trades. But the old apprenticeship system will not do; it must be one adapted to the changed conditions of today as compared with those of other times. A building trades apprentice is no longer to be given all the unpleasant and menial tasks and kept in ignorance of the principles of the trade as long as possible.

"An adequate labor supply is necessary to furnish a satisfactory outlet for the product of the manufacturer and therefore has a direct relation to the general expansion of the industry. An adequate outlet for material permits a more normal development of the market and helps reduce the production cost."

Creating a Sheet Steel Minded Public

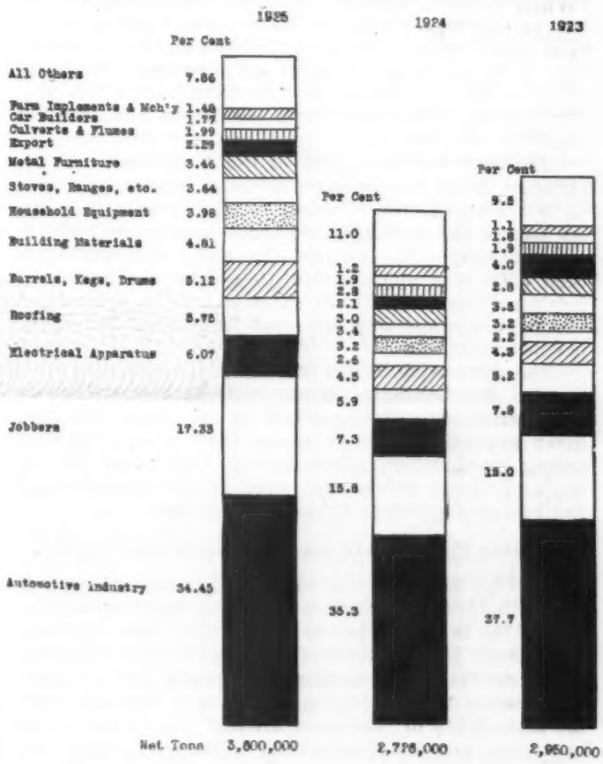
J. J. Rockwell, vice-president Crosby-Chicago, the firm which formulated the sheet steel trade extension plan and which has since functioned as the operating branch of the committee, in his talk, "Creating a Sheet Steel Minded Public," also noted indifference in the response of the sheet metal contractors and jobbers to the efforts of the trade extension committee. He made a strong plea that plenty of time be given the movement, since steel was something different from a book, a play or a new food so far as rapid reaction was concerned. Mr. Rockwell said in part:

"It is the province of advertising, and in that is its greatest effectiveness, to seek out leaders and waken their emotions, fire their imaginations and thus bring into action that most powerful of all forces of education and propaganda, word of mouth advertising, the only kind that money cannot buy. This is the way that the public mind is made for any product; that is the way it is being made for sheet steel. And this is one reason why capturing the public mind for a commodity takes time, one reason why time is the most important of all of the elements involved. And in connection with our own commodity, it is important to observe that where time is an element in demonstrating satisfactory or superior service, the longer it takes to get the word of mouth advertising at work.

"There is still another angle of this subject, which is of the utmost importance. In fact, from the standpoint of profitable selling, it is the key to the whole situation. We speak and think of the public as a body of consumers of our product—we call it the consuming public—but there is a section of the public that has a function far transcending in importance its buying power for its own consumption. That section is composed of the fabricators, jobbers, sheet metal contractors and dealers through whom sheet steel and its products must finally come into the service of the consumer, the distributing fabric of the industry.

"However strongly we may incline the mind of consumers to sheet steel in its many applications, we cannot by any possibility reap the harvest due to that state of mind unless the potential demand thus built can be easily and satisfactorily supplied. There is constantly increasing evidence that fabricators and their associations are appreciative of and are responding vigorously to the stimulus of our campaign and to a considerable extent are cooperating with it and taking advantage of it.

"Jobbers and sheet metal contractors, however, seem to develop little enthusiasm. An official of one of the leading jobbers in Chicago with whom I talked a few weeks ago was very complimentary toward the constructive character of our work, but said that his company would work up no enthusiasm over aggressive sales work in the pushing of sheet steel because there was no protection from the mills against irresponsible competition. This thought was again sounded at the meeting in Cincinnati last week of the metal branch of the American Heavy Hardware Association, and there has been a more or less constant reflection of it in all of our contacts with jobbers at all times. This attitude of course is a serious obstacle in securing vigorous merchandising efforts by sheet metal contractors. If an organized and protected method of marketing through jobbers could be brought about, it would be an immensely helpful development."



Shipments of Sheet Steel Classified for Three Years, Based on Records of Independent Sheet Manufacturers. (*See page* 1422, THE IRON AGE, *May* 20)

Competition Arising from New Practices and Changed Customs

Laurence F. Miller, general manager of sales, National Enameling & Stamping Co., Granite City, Ill., in his address, "The Need for and Value of Cooperation in Trade Extension Effort," pointed out that the competition between those engaged in making the same prod-

(*Continued on page* 1556)

To Organize 500 Trade Bodies

American Supply and Machinery Manufacturers Meeting with Southern Supply and Machinery Distributers Move Further to Eliminate Government Interference

VIEWING with increasing alarm the interference of Government agents and agencies with the normal process of legitimate business, members of the American Supply and Machinery Manufacturers Association, assembled in annual convention at the Hotel Statler, St. Louis, on May 18, 19 and 20, authorized a committee to take up with the more than 500 organized trade bodies in the United Staees the proposition of holding a meeting at some central point to "consider ways and means of bringing forcibly to the attention of Congress the necessity of amending the Sherman and other so-called anti-trust laws so that business can function fearlessly along legitimate and sensible lines."

The executive committee of the association was instructed to aid the special committee, headed by Dixon C. Williams, Chicago Nipple Mfg. Co., in accomplishing its purpose of uniting these trade associations into a concrete body with a definite aim, and a sum not to exceed $500 was appropriated to defray the organization's portion of the total expenses of the centralized campaign against governmental "snooping" in purely business channels.

The convention, which was held in conjunction with that of the Southern Supply and Machinery Dealers Association, was distinguished by the close attention given to the discussion of the various business problems facing the members. Outstanding, because of the remarkably large attendance, were the joint sessions of the two organizations held each afternoon.

Limiting Purchases to Several Responsible Concerns

BUYERS were advised to build up their friendships with those from whom they purchase, as well as with those to whom they sell, by K. H. Taylor, general purchasing agent Illinois Glass Co., Alton, Ill., in a paper on "Is It Economical Purchasing for a Large Corporation to Go Shopping Around?" He said that the desirability of "shopping around" should be limited to known and reliable sources of supply, where the prices, goods and service will be to the buyer's advantage.

"In certain lines of manufacture and distribution there are well established, responsible manufacturers and dealers. Confine your inquiries and orders principally to them, to enough of them to secure the lowest prices, the best goods and assured deliveries, and in the long run you will buy to the best advantage. A steady run of business placed with a limited number of shippers will result in a greater volume for them which will bring out not only low prices, but also an interest in making favorable quotations to secure orders. Such a practice also will set up connections that know what you want and how you want it. It will assist in the formation of personal friendships that will carry you through emergencies and give you a preferred standing when goods are scarce or in heavy demand."

In buying miscellaneous goods for general use around manufacturing plants, stated Mr. Taylor, it is well to standardize upon certain items and contract for requirements over a period of time. This policy usually follows the process of trial and elimination of numerous competitive goods in the same line. In this sense it pays to "shop around" until some definite decision is reached.

Mr. Taylor expressed doubt regarding the advisability of broadcasting inquiries for prices to every possible source of supply on each and every item, large or small, a practice commonly followed by railroads. Price then is often the sole factor. Manufacturers know that the inquiry has been broadcast and therefore their responses often are perfunctory and no special effort is made to secure the business.

Buying on Price Alone

Denunciation of the price cutter was voiced by Mr. Taylor, who declared that those who "make a practice of placing business at cut prices aid and abet the chronic disturber of business. Send out your inquiries and buy on price alone, and you establish your own reputation in the trade as a purchaser of cheap goods. This reputation will reflect upon your business judgment and classify you as an undesirable customer among those who insist upon a fair profit or no sale in marketing their products. You get only what you pay for. No one can or will sell you a Rolls-Royce at the price of a Ford."

There are instances in the relation of buyer and seller in which continued use of certain materials has led to one exclusive source of supply, and no attempt is made to place business upon a competitive basis. Under such circumstances, according to Mr. Taylor, buyers must be careful not to get out of touch with markets and not to kill the interest of competitors in endeavoring to obtain some of their business. If they limit their purchases to one source, they will ignore the fact that "some one else at some time may have something equally good to offer at a lower price, or something of superior merit at as good a price, but this information remains unknown because an opportunity is not given to submit it."

Taking Back from Dealers Surplus Stocks

BUYERS should not expect manufacturers to take back surplus stocks, but the latter should cooperate in distributing them without loss to the jobber if possible, declared John F. Hazen, Pittsburgh Steel Co., Pittsburgh, in discussing the policy of some manufacturers to allot more tonnage to the dealer than his necessary stock requirements, with the result that the market is demoralized when the surplus is unloaded. He said that the manufacturer sometimes can dispose of certain items in some other territory and the dealer should not hesitate to ask for such assistance. However, the former should not be expected to stand the charges for freight or other expenses or losses.

Mr. Hazen said that in routine business, special sales should be avoided, but should they become necessary in connection with surplus materials they should be given due publicity and should be restricted to a brief period of time. He emphasized that the wholesaler's warehouse is the storeroom on which the community depends, and it is an indispensable necessity to the manufacturer. Therefore, the wholesaler is entitled to purchase goods favorably so as to compete with other distributers. The consumer has no just ground for complaint if he pays for his supplies proportionately to his capacity and standard of earnings. It is logical that he should pay a fair price which will afford in the ordinary distribution of goods a reasonable profit each to the manufacturer, wholesaler and retailer.

Successful Selling Versus Buying Business

"We must bear in mind that the amount of business we can do is limited, and we should direct our efforts toward sharing in a fair profit on what is available rather than attempt to corral too great a share on conditions that are destructive and unremunerative,"

remarked Mr. Hazen. He stated that there is no substitute for the salesman in distribution. A concern is judged by the character of its representative. The successful salesman "employs and possesses many seasoned accomplishments, such as patient consideration, attention to the minute needs of the buyer, intimate knowledge of his products, courtesy, convincing strength of presentation, pleasing contact, good faith and unbroken promises."

Declaring that when "we sell below the market we are dissipating profits that rightly belong to our stockholders," Mr. Hazen stated that it is not difficult to reduce prices, but to restore the market is quite a different problem and may be a matter of months. The total consumed over a period of time will not vary noticeably, whether the price is slightly lower or higher.

In overbuilt industries the effort of one manufacturer to run in excess of others is commendable, if accompanied by the proper selling methods or improved goods, but where the manufacturer resorts to "buying" business, the reflection on the general market is inevitable. Control of resale markets then passes to other hands. Stability, so desirable to manufacturer and merchant, is impossible.

If volume is created by price concessions and the concessions are reflected in the resale, the original sale that may have been thought beneficial becomes a boomerang to harass the seller on its second movement. It is the repeat order that produces the best profit, and they emanate only from continuous active distribution. The first sale through a gradually encroaching movement in the resale market may force the whole output of the manufacturer to a lower level.

Other Subjects of the Joint Sessions

IN a discussion of "Odd Size Material," J. L. Pitts, Brown-Roberts Hardware & Supply Co., Ltd., Alexandria, La., said that it is difficult to determine what are odd sizes, because they differ in various consuming industries. He stated that the program of standardization and simplification of the Department of Commerce is making progress in assisting in the elimination of odd sizes. S. A. Ellicson, Chicago Pulley & Shafting Co., Chicago, declared that the manufacturer loses money on every odd-size he makes, and possibly the solution is for the consumer to pay a premium for it.

Many other subjects were discussed at the joint sessions of the two associations. Lucien M. Harris, financial editor St. Louis *Globe-Democrat*, talked on "Commercial Sportsmanship," while George Winship, Fulton Supply Co., Atlanta, Ga., introduced the topic "Compensation to Dealer on Manufacturers' Direct Sales." Hand-to-mouth buying was discussed by David C. Jones, Lunkenheimer Co., Cincinnati, and D. D. Peden, Peden Iron & Steel Co., Houston, Tex. K. G. Merrill, M. B. Skinner Co., Chicago, made an address on "Specialty Salesmanship." The need of a uniform contract was stressed by T. F. Bailey, Banks-Miller Supply Co., Inc., Huntington, W. Va. "Dealer or Curbstone Broker—Which?" was the discussion introduced by J. B. Crimmins, Mills & Lupton Supply Co., Chattanooga, Tenn.

President Ruf Addresses Machinery Manufacturers

IN his report as president of the American Supply and Machinery Manufacturers Association at the opening session of that organization's convention, John C. Ruf, I. B. Williams & Sons, Dover, N. H., stated that manufacturers are realizing more each year the advisability of marketing their products through dealers. While business has been going through a period of readjustment similar to the downward movements which occurred in the spring months of 1924 and 1925, at this time all of the financial reports are encouraging. There is nothing basically wrong anywhere, but Americans have become supersensitive.

Mr. Ruf pointed out the fact that the association has showed a gain in membership, despite the inability to hold a triple convention in the past two years with the National Supply & Machinery Dealers Association. He paid a tribute to the work that has been done by F. D. Mitchell, secretary-treasurer. Incidentally, Mr. Mitchell became ill during the convention and was compelled to return to his home in New York. At the closing session the delegates passed a resolution conveying to him their sympathy and their hope of a speedy recovery. In his absence his annual report was read by Henry G. McComb.

Dixon C. Williams, chairman of the industrial legislation committee, made an address on the work accomplished in the past year, and outlined a program which later was embodied in the resolution calling for remedial legislation against governmental interference in business and trade associations formulated for the interchange of business ideas and working toward the stabilization of prices on a profitable basis to the manufacturer.

Officers Elected

D. S. Brisbin, Columbus McKinnon Chain Co., Columbus, Ohio, was elected president of the association for the coming year. Other officers are R. B. Skinner, Skinner Chuck Co., New Britain, Conn., first vice-presi-

JOHN C. RUF

Members of the American Supply and Machinery Manufacturers' Association

John C. Ruf,

I. B. Williams & Sons, Dover, N. H., retiring president after two consecutive terms.

W. C. Henning,

A. Leschen & Sons Rope Co., St. Louis, chairman of executive committee.

W. C. HENNING

dent; A. R. Webber, H. B. Sherman Mfg. Co., Battle Creek, Mich., second vice-president; J. H. Williams, J. H. Williams & Co., Buffalo, third vice-president. Members of the executive committee are W. C. Henning, A. Leschen & Sons Rope Co., St. Louis, chairman; C. O. Drayton, Graton & Knight Mfg. Co., Worcester; Horace Armstrong, Armstrong Brothers Tool Co., Chicago; W. H. Glatt, Victor Balata & Textile Belting Co., New York, and W. F. Wright, Wright Mfg. Co., Lisbon, Ohio.

Tells Jobbers They Too Generally Seek Volume

ONE of the greatest problems in business today is the disposition of some distributers to sell in fields not in their logical territory, said George Winship in his annual report as president of the Southern Supply and Machinery Dealers Association. Factors that determine the territory of a jobber should be the amount and variety of the merchandise he handles, his location, the location of his competitors and the size and completeness of their stocks, the number of prospective customers, and transportation facilities. In the main, jobbers should confine their operations to that territory in which they can give their customers equal or better service than their competitors and in which transportation charges are in their favor. When jobbers get beyond these bounds the only thing they have to offer is price, which is a poor sales argument.

Speaking on the subject of net profits, Mr. Winship declared that the average in the association in the past year was less than the returns the members would have received from Government bonds. The reason for this small margin is to be found in the desire of some jobbers to increase their volume at any cost. The result has been almost ruinous competition in the mill supply trade. Mr. Winship suggested that "we must put a price on our merchandise which covers the flat cost, the cost of operation and a reasonable profit, and then adhere to that price." He also advocated the policy of distributers confining their purchases to as few sources as possible.

Business Status of Southern Dealers

Reports from members of the association show a reasonably satisfactory increase in volume of business recently, but in very few instances has there been a satisfactory profit or a reduction in overhead, according to Alvin Smith, Smith-Courtney Co., Richmond, Va., in his report as secretary-treasurer. Collections have been fair to good, and terms generally have been observed, although there is a continued abuse of the cash discount privilege extended to customers. The returned goods evil is another factor needing serious thought. The high cost of selling likewise demands attention. Mr. Smith said that "when the expenses of a traveling salesman reaches an average of approximately 6 per cent, the danger signal should be sounded."

Reverting to the relations of jobbers and manufacturers, Mr. Smith called the attention of the latter to the unfairness of compensating their distributers to too little an extent, and to the unwise policy of broadcasting their discount sheets. He stated that the tendency of manufacturers to seek distribution through jobbers is growing, and that the cost of selling through other channels is too high. The association has succeeded in having manufacturers restore cash discount terms which previously had been withdrawn.

Mr. Smith said that the organization has been combating the efforts made by the Southern classification committee to raise the ratings on transmission machinery and equipment to the same classes existing in official classification territory. He stated that the association has cooperated in the program of standardization and simplification conducted by the Department of Commerce, especially in the simplification of grinding wheels, shovels and scoops.

Reports on Trade Practices

AN outstanding feature of the meeting of the Southern Association was the report of a special committee on trade practices, consisting of J. A. Vann, Young & Vann Supply Co., Birmingham, chairman; D. D. Peden, Peden Iron & Steel Co., Houston, Tex.; and T. F. Bailey, Banks-Miller Supply Co., Huntington, W. Va. It recommended the setting up of a correct cost finding system by jobbers and the adherence to the resale prices suggested by manufacturers. It also advised each jobber to stay within the bounds of his own territory instead of invading that of his rival to secure a greater volume of business.

The committee favored the policy of mill supply dealers in each territory working out arrangement for the exchange of information regarding the credit standing of customers. It urged every member of the association to stand behind the secretary in his endeavor to secure and retain cash discounts allowed by manufacturers.

In discussing stock turnover, the committee stated that "one of our members last year earned handsome dividends. In talking with him about his business we discovered that he had turned his merchandise 11 times in 1925. This, combined with adequate pricing, developed satisfactory profits. We believe that the chain stores with their idea of quick turnover can teach us something. Mill supply jobbers should carry stocks that will meet the reasonable demands of their trade, but they should not invest in items which will not turn over at least six times a year."

In making his report as chairman of the executive committee, J. L. Pitts reaffirmed the wisdom of the policy of manufacturers distributing their goods through jobbers instead of selling direct to consumers. The question of holding group meetings in various parts of the territory covered by the association was discussed exhaustively.

Officers of Southern Association

L. J. Larzelere, Farquhar Machinery Co., Jacksonville, Fla., was elected president for the 1926-1927 term at the closing session. Other officers who will serve with him are T. C. Keeling, Nashville Machine & Supply Co., Nashville, Tenn., first vice-president; F. M. Archer, Superior Supply Co., Bluefield, W. Va., second vice-president; Alvin M. Smith, Smith-Courtney Co., Richmond, Va., secretary-treasurer. Members of the executive committee will be George Winship, chairman; J. L. Pitts; C. C. Rose, Central Supply Co., Little Rock, Ark.; and W. W. Doe, Alabama Machinery & Supply Co., Montgomery, Ala.

Employment Declines in Metal Trades

A decline in employment in April was reported by shops affiliated with the National Metal Trades Association, Chicago. More than 770 plants in New England, New York, New Jersey, Pennsylvania, Ohio, Indiana, Michigan, Illinois, Iowa, Wisconsin and Missouri had a total of 653,898 employees in April, as compared with 656,731 in March, 652,844 in February, and 635,104 in January. The largest loss in employment was in Detroit, which reported a total of 251,578 employees in April, as against 269,959 in March.

Coming Simplification Meetings

WASHINGTON, May 25.—Proposed elimination of superfluous sizes of trap screw ferrules will be discussed at a meeting with the Division of Simplified Practice and the National Committee on Metals Utilization, at the Department of Commerce, on June 9. On June 10 there will be a conference to discuss recommendations for simplification of hollow metal doors and trim. On June 16 a similar conference will concern straight roller bearings, while on June 17 there will be a general discussion concerning the problem of simplification of radiators.

Machinery Dealers Discuss Problems

Used Tools, "Open Lines" and the Best Manner of Handling Them, and Other Pertinent Subjects Uppermost in Convention at French Lick Springs

Some of the Methods of Handling Machine Tool Sales Recommended by Dealers:

Special factory representatives should confine their activities to sales engineering and leave selling to dealers' salesmen.

"Open line" tool manufacturers should sell only through accredited machine tool houses.

List prices on "open line" tools should be maintained.

Better methods of marketing used tools acquired in trade deals.

It was stated at the meeting that the 31 dealers in the association have an annual turnover exceeding $50,000,000.

HOW can machine tool dealers and manufacturers reduce their selling costs? What is ideal cooperation between a dealer and his salesmen? What is the best method of adjusting salaries and establishing a correct ratio between sales cost and individual earnings insofar as such matters can be resolved into set terms? How much of the dealer's work can be done for him by the manufacturer, especially considering the good and bad features of the present policy of having special factory representatives assisting the dealer?

These were among the problems discussed at the semi-annual meeting of the Associated Machine Tool Dealers at French Lick Springs, Ind., on May 20, 21 and 22. Other topics discussed exhaustively were the marketing of second hand machine tools and the sales policy of tool builders who prefer to sell their equipment on an "open line" basis rather than through dealers with exclusive selling rights in designated territories.

Present at the business sessions of the convention were 26 of the directing executives of 20 machine tool dealers from all parts of the United States. The fact that the 31 members of the association have a mercantile rating of approximately $13,000,000 and that their annual turnover is between $50,000,000 and $60,000,000 was revealed at the opening meeting.

Says Dealer's Salesmen Should Do the Selling

THAT machine tool manufacturers should confine the work of their special factory representatives to sales engineering and should let the dealers do the actual selling was the recommendation of J. R. Porter, Marshall & Huschart Machinery Co., Chicago, in his paper on "Special Factory Representatives." He said that "manufacturers, under the present working arrangement of special factory representatives, are not securing results commensurate with the cost involved. What is needed in the way of help from manufacturers is sales engineering and advance constructive work, capable demonstrators and the proper service to keep machines sold after they have been installed. If the factory representatives are to act in the capacity of salesmen, the same as our men, they should be on our payroll and not on that of the manufacturers. Let the manufacturers furnish the engineers and the machine tool dealers the salesmen."

Mr. Porter said that under the present plan, whereby many factory specialists are strictly salesmen working on their own individual lines, there is a tendency to cause friction and sometimes misunderstandings between the dealer's sales organization and the factory's special representative. In many cases there are two salesmen calling on the same prospect where one would do. There even is danger of placing the actual order in jeopardy because the factory representative in making his occasional calls cannot expect to be as close to the buyer as the salesman with his more frequent calls and oftentimes personal friendship. This is particularly true when the factory representative endeavors to establish contact with the prospective customer without consulting the dealer's salesman in whose territory the customer is located.

The use of special factory representatives strictly in the capacity of estimators or sales engineers would be of unquestionable benefit, according to Mr. Porter. However, the sales engineers should be under the supervision and direction of the dealers, thereby in a measure giving protection to the manufacturer who employs them and to the dealer in whose territory they work.

The time of sending special factory men into the field has been left generally to the discretion of the manufacturer, and often the dealer has no advance notice of their arrival. Furthermore, many dealers have had several factory representatives arrive at their offices on the same day with the result that there have not been enough salesmen to work with them. Mr. Porter suggested that a partial solution of this problem might be to have a definite understanding with manufacturers that in sending out their men they must take the chance that their representatives will have to work alone. In such cases there should be no ill feeling on the part of manufacturers.

It is advisable, according to Mr. Porter, for manufacturers to have their representatives make their reports in duplicate so that a copy can be given to the dealer, enabling him to keep his sales organization fully informed regarding the factory representative's activities.

Suggests More Rigid Policy for "Open Lines"

DECLARING that manufacturers having an "open line" policy should limit the privilege of quoting on their products to accredited machine tool dealers, Percy Ridings, Syracuse Supply Co., Syracuse, N. Y., in a paper on "Open Lines" suggested that much of the present price cutting could be eliminated if builders would refuse to allow mill supply and plumbing supply houses, as well as dealers in used machinery, to sell their tools. He defined "open lines" as those not covered by exclusive agency contracts and stated that the open line manufacturers produce a larger and greater variety of machines than those sold on an exclusive basis.

In his paper Mr. Ridings complained of the large group of manufacturers who are willing to send their price list and discount to any and all engaged in the resale business. These manufacturers "have established a price which satisfies them and beyond that they do not care what price their tools bring. Many builders have a large margin between the so-called list price and the net price and they do not seem to realize that

(*Continued on page* 1549)

NEW PNEUMATIC TOOLS

Heavy-Duty Grinder and Pneumatic Drill Added to Line of Portable Machines

New portable pneumatic tools have been added to the line of the Warner & Swasey Co., Cleveland, and further refinements incorporated in the type D-1 machine which was described in THE IRON AGE of Feb. 5, 1925.

The air motor of these machines is of the two-cylinder type. In each cylinder is an eccentric rotor revolving inside the inner wall of the cylinder, which is bored perfectly round. Air enters the motor through the intake port, the main flow passing downward into the cylinder and driving the rotor in a clockwise direction. A part of the air also exerts a constant downward pressure on the rotor blade which seals all direct connections between the inlet and exhaust ports. The rotors are keyed to the shaft in directly opposed positions. When the rotor in one cylinder is in position for exhaust, the rotor in the other cylinder is in a directly opposite position, and at the mid point of its upward power impulse. This is stressed as preventing possibility of stopping on center and as providing proper balance and even flow of power.

Absence of Vibration Claimed

In addition to light weight, absence of vibration is claimed, this absence of vibration being pointed to as keeping the cutting edge of the grinding wheel against the work, and preventing the wheel from wearing out of round. Proper balance eliminates the necessity of bearing down with excessive pressure on the grinding wheel, which minimizes fatigue of operation. The motors of these tools have only three moving parts, the shaft assembly and the two rotor blades, and this simplicity of construction is stressed as minimizing maintenance cost. The entire grinder can be disassembled in 10 min., and the only tool required is a screw driver.

Clearance between the rotor and cylinder walls is just enough to prevent wear. An oil film seals this clearance and prevents leakage of air between the rotor and the cylinder walls. A large ball bearing mounted between the two cylinders centralizes the rotor assembly exactly. An oil reservoir in the handle provides sufficient lubricant for 6 to 10 hr. continuous operation. The oil enters the motor along with the incoming air and can be regulated by an adjustable needle valve.

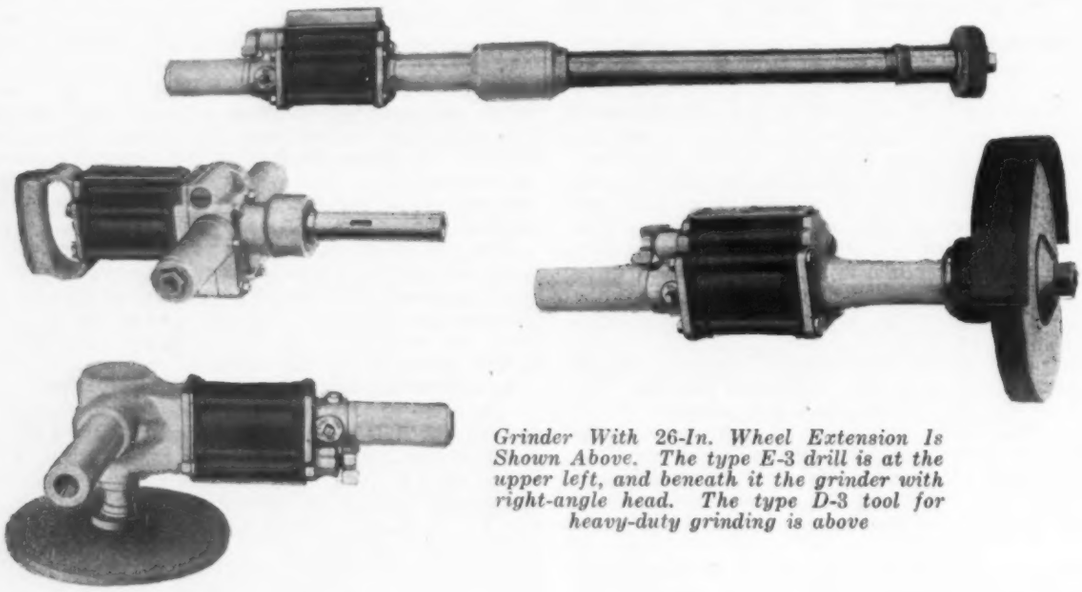
The type D-1 grinder, which weighs only 8¾ lb., is adapted for light grinding, buffing and polishing. When fitted with rubber bonded abrasive wheels, it is suitable for grinding electric or acetylene welds, and may be also used for grinding and smoothing of die molds and for cutting and turning wood where close accuracy is required.

The average air consumption of this grinder, computed on the basis of 85 lb. air pressure, is about 30 cu. ft. of free air per min. The throttle control permits instant selection and maintenance of any desired speed up to 4000 r.p.m. This type carries a grinding wheel of 6 in. x 1 in. x ⅝ in.

The D-1 grinder is available also with an extension on the wheel end, inclosed in a tubular housing. This model is usually equipped with a cone wheel, a cup wheel, or a plain wheel of small diameter, and is used for grinding the inner surface of hollow castings.

Right-Angle Head Permits Use of Abrasive Disks

The same type of grinder may be furnished also with right-angle head, as shown in one of the accompanying illustrations, which is intended to make the tool convenient for grinding large surfaces with abrasive disks. This model is designed especially for the grinding of automobile bodies or other large metal surfaces, and when fitted with a long hose, wide use is possible in automobile assembly line-ups. The disk used is 8 in. in diameter or smaller. The weight with disk is 13 lb.



Grinder With 26-In. Wheel Extension Is Shown Above. The type E-3 drill is at the upper left, and beneath it the grinder with right-angle head. The type D-3 tool for heavy-duty grinding is above

Another variation of the D-1 tool is provided with reduction gears in order to give satisfactory results on low air pressure, such as 50 to 65 lb. The tool is powerful, due to the reduction gear feature, the ratio being 2 to 1. It is suitable for using grinder wheels up to 8 in. in diameter. This model is adapted for use in connection with planers, boring mills, engine lathes and for emergency grinding of all kinds.

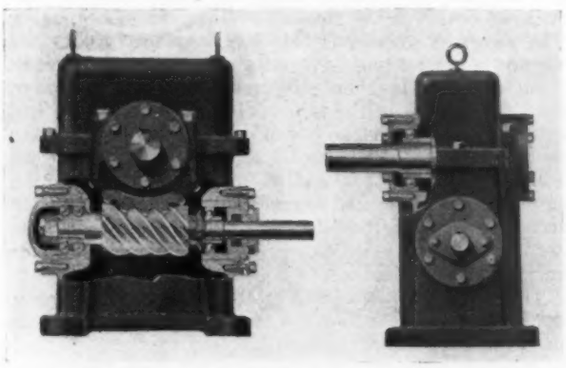
A new grinder is the type D-3 for heavy duty work. It carries grinding wheels up to 2 in. in width; the speed under working load is 3200 r.p.m. and the free speed 4000 r.p.m. The weight without wheel is 16 lb. The length over all is 17½ in.

A pneumatic drill, designated as the type E-3, is being marketed, also. This tool weighs 13 lb. and may be used conveniently for small size drilling and reaming, although power is provided for drilling and tapping holes up to ½ in. in diameter through cast iron 1½ in. thick.

The motor is the same as that used on the type D-1 grinder, described above. A responsive, quick-acting reverse mechanism is embodied in the control handle, a slight turn of the handle serving to instantly reverse the direction of the drill. This feature is stressed as permitting the drill to be used to advantage for driving taps, setting studs and running down nuts on assembly work. Three models are furnished with speeds of 500, 750 and 1500 r.p.m, respectively.

Single-Unit Worm-Gear Speed Reducers Made in Three Types

A single-unit worm gear reducer in three types, for reductions up to 100 to 1, is being marketed by the Horsburgh & Scott Co., Cleveland. One model, designated as the type B, has the worm below the gear; the type T has the worm above the gear; the type V is arranged with the gear shaft vertical. These three types are stressed by the makers as offering considerable latitude in the placing of the speed reducer and motor. They are compact and self-lubricating.



The Size and Mounting of the Gear Shaft Depends Upon the Load That the Unit Will Be Called Upon to Transmit. For overhung loads heavier shafts and bronze journal bearings are used

The worm is of straight-body type, integral with its shaft, which is of large diameter to minimize deflection and assure smooth action. The worm and shaft are a solid forging of special low carbon steel, carbonized, case hardened and ground all over including the thread surfaces. The worm shaft is mounted on ball bearings. The rear bearing is of duplex radial thrust type, and the front bearing straight radial type. The inner race of the latter bearing is fastened to the worm shaft, the outer race being free to float axially, thereby allowing for expansion and contraction of the shaft. The duplex radial thrust-type rear bearings permit normal worm rotation in either direction. In the smaller units the entire worm gear is of bronze; in the larger units the bronze gear ring is shrunk on a cast-iron center and further secured by riveted steel pins.

The size and mounting of the gear shaft is determined by the character of the load that the unit will be called upon to transmit. Where the load is principally torque, being transmitted through flexible coupling or where outboard bearing is used, lighter shafts mounted on either ball or roller bearings are specified. For overhung loads such as pinion, sprocket or pulley mounted on the extended shaft, heavier shafts and bronze journal bearings are employed. These bearings are solid, so that the load may be applied from any direction. Where the unit is subject to shock or peak loading, or the duty is exceptionally severe, extra large shafts are used. In all cases, gear shafts are oversize for the particular load to be delivered. Accurate mounting has been given special attention. Regardless of the bearing used, correct alinement is assured by heavy external ribbing extending from the journal block to the base of the housing.

The housing is of gray iron and is designed with ample wall and flange sections. It has heavy external ribbing to resist distortion from heavy loads. The interior is free from projections or pockets which might set up objectionable oil swirl in the reservoir at the bottom, with consequent heating and loss of power. The upper part of the housing may be removed conveniently and without disturbing either worm or gear alinement. The housing is sand blasted inside and out and is coated inside with an oil resisting compound intended to promote radiation of the heat. The outside of the housing is coated with a hard finish machine paint.

An oil filler pipe is provided, the height of the latter serving to determine the level to which the reservoir should be filled. This feature is stressed as preventing filling to a point where the oil is churned.

The contact between worm and gear is continually within the body of the oil in the reservoir. The worm bearings are also lubricated directly from this source, and gear bearings are amply lubricated by means of a special device.

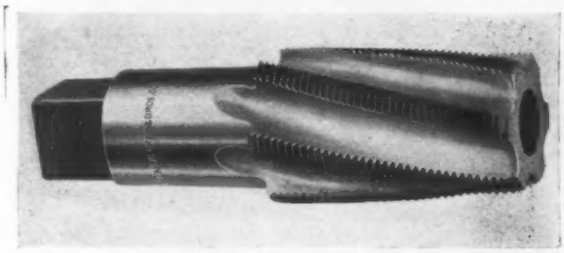
New Tools for Locomotive Boiler Work

Two new tools for locomotive boiler work, one a flexible staybolt tap, and the other a tool designed to drill, ream and countersink flue sheets in one operation are being placed on the market by the W. L. Brubaker & Brothers Co., Millersburg, Pa.

The new flexible staybolt tap, shown in the upper illustration, has a special right-hand spiral flute. The degree of angle of the spiral was determined by experiment and is said to be such as to give the tool the proper cutting qualities. Hard cutting due to the taper of flexible staybolt taps is claimed to be eliminated, and the life of the tool to be increased materially as compared with the straight-fluted tap heretofore offered by the company.

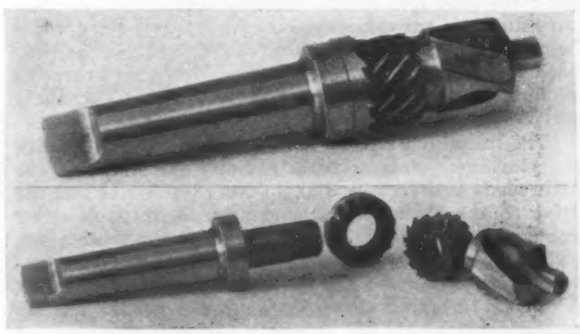
These taps are available in the usual sizes and tapers. They may be furnished with pilots on the end for attaching pipe or other types of guides for the tool, and are also available with a tapped hole, into which pilots may be mounted. Reamers for use with and made to conform to this style of tap, are also available.

The tool for drilling, reaming and countersinking flue sheets is intended to do in one operation what is usually done in three operations. All parts of the tool



The Flexible Staybolt Tap Shown Above Has a Right-Hand Spiral Flute. Reamers for use with this tool are available

The Tool for Drilling, Reaming and Countersinking in One Operation Is Below



are made on the interchangeable basis and any of the parts can be replaced conveniently when worn. This tool, also illustrated herewith, is available in a variety of sizes and styles of shank.

The effect of mass production on machine tool design will be discussed at a meeting of the Cincinnati section of the American Society of Mechanical Engineers, to be held at the English Literary Club Rooms, Cincinnati, May 27. Arthur C. Pletz, general manager of the Morris Machine Tool Co., will be the principal speaker.

Duplex Machine for Slotting Plain and Castellated Nuts

A machine for slotting castellated nuts in 9/16 to 15/16 in. hexagon sizes is being brought out by the Pellow Machine Co., 6527 Epworth Boulevard, Detroit. It can also be used for slotting plain nuts, and the production claimed is 3000 completed nuts per hour. This machine, which is illustrated herewith, is of duplex type with duplicate slotting mechanisms located on each side. The nuts are fed from a hopper onto one of the two carrier chains of special alloy bronze, driven by a

Production of 3000 Nuts Per Hour Is Claimed

sprocket at the feed end and running around a pilot wheel at the opposite end. Each chain carries a removable collet which is held firmly in place by a spring arrangement. These collets can be removed easily and replaced with others for different sized nuts.

Above the carrier chain are three 4-in. diameter saws for cutting the slots. The work indexes twice, or after the first and second slotting operations. A pressure finger is provided for keeping the nut rigid while being slotted. The nuts drop from the carrier as they pass around the pilot wheel end and are carried through a chute to a tote box under the machine. The chain carrier travels at a speed of 32 in. per min.

The initial drive is by a 5-hp. motor located beneath the machine. Belt drive is entirely eliminated. The main shaft is driven by a chain from the motor and the drive to the chain carrier and saws is through miter gears and worm gear. One chain drives the three saws, passing over the saw arbors, and under two arbors between the first and second and second and third saws. A spring tightener serves to keep the proper tension on the conveyor chain. A safety device is provided for stopping the machine should a nut not become properly located in a collet. Pump and piping for coolant is regularly provided.

Vacations for Shop Employees

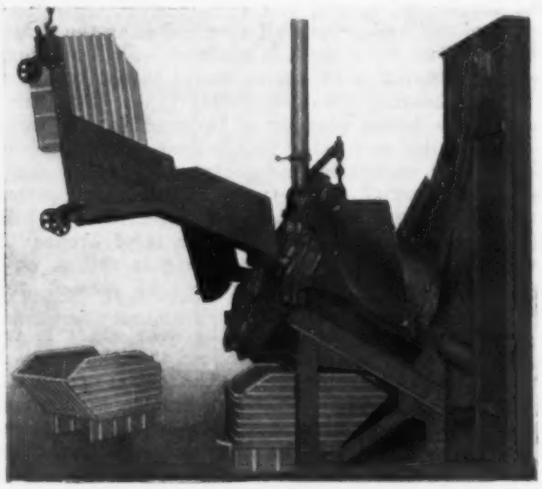
Annual vacation with pay for shop employees, as well as for office forces, has been adopted by more than one-third of 250 firms which have recently reported to the Bureau of Labor Statistics. Nearly 260,000 employees are affected. The length of service required, to be eligible for a vacation, varies from a few months to not more than two years. Although it is extremely difficult to estimate the results of paid vacations, the movement appears to be extending.

Develops Device for Loading Sand Blast Mill

Increased production and savings in the cost of cleaning castings are claimed for a new loading device, brought out recently by the W. W. Sly Mfg. Co., Cleveland, for use with its No. 00 Slyblast tilted mill. The device facilitates loading and unloading the mill and without rehandling of the castings. Idle time is minimized, the mill being said to be kept in operation practically all of the time.

Tote boxes containing the material to be cleaned are brought from the foundry or forge shop by lift truck or crane to the loader. While the sandblasting is in progress an empty tote box is placed under the mill and a second tote box, containing a charge of work to be cleaned, is then suspended above the loader. When the charge in the mill is cleaned, the bottom mill door is opened and the clean work dropped into the empty tote box. The second tote box, with the work to be cleaned, is then placed on the loading device, the front mill doors are opened and the loader with the second tote box is moved over to the mill for loading. By this time the cleaned work has been entirely discharged from the mill.

The loader is then raised by the hoist to the position shown in the illustration and the work slides down into the mill. The loader is then lowered to the floor and moved back to receive another filled tote box. The first tote box, with the cleaned castings, is transported by lift truck or crane to the grinding, shipping or assembly room, and the second tote box, the contents of which were dumped into the mill by the loader, is then placed under the mill in readiness to receive the cleaned work. The cycle of operations is then repeated. It will be noted that the same tote boxes are used for loading



The Tote Box With Work to Be Cleaned Is Placed on the Loader. The loader is then raised by the hoist as shown, the work sliding by gravity into the mill

and unloading the mill and for transporting the work. No other boxes are necessary.

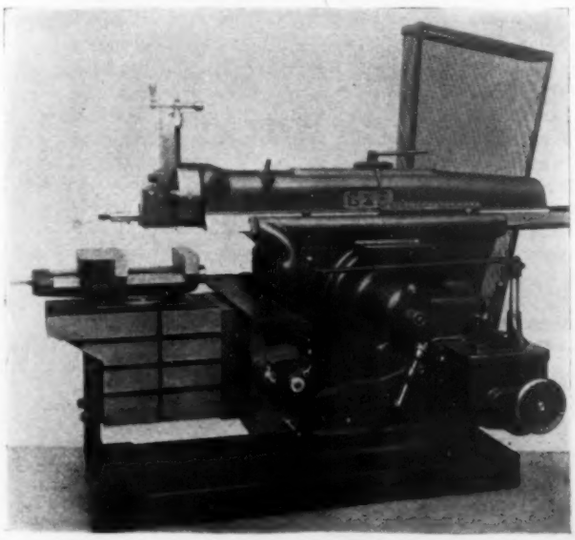
The loading device is of structural steel and is reinforced where wear occurs. Large ball-bearing swivel castors are incorporated to facilitate turning in short radius. The tote boxes are 51½ in. long, 33 in. wide, 24 in. deep and 33 in. high, and are made from two pieces of steel welded at the ends. Copper bearing steel is used to prevent corrosion. Skids are provided at the bottom of the boxes to facilitate handling by lift trucks. A suitable lift truck can also be furnished, and both the tote boxes and lift trucks can be used in other service when not employed in connection with the loading of the mill.

Relations between the temperatures, pressures and densities of gases are covered in circular No. 279 of the United States Bureau of Standards, which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at 25c.

Improved Features Incorporated in G. & E. Line of Shapers

Extension of the automatic force-feed lubricating system to include the ram bearings as well as the bearings of the other power actuated slides or driven shafts is one of several improvements incorporated in the line of shapers built by Gould & Eberhardt, Newark, N. J.

The oil is distributed to all bearings through tubes and where necessary pins and shafts are drilled and cross-drilled for lubricant. All outlets lead into grooves designed to distribute the oil and adequate provision is made for draining and returning the used lubricant to the reservoir. The system is arranged to flood the bearing surfaces continuously with oil, when at minimum pressure. A by-pass valve provided may be closed to increase the oil pressure, if higher pressure is desired. The oil flows over the moving parts inside of the shaper frame and down through a screen to a sump in the base, where it is filtered before being circulated. Drainage canals and wipers prevent the lubricant from running down the outside of the machine. New oil is poured into an opening in the base and provision is made for conveniently observing the oil level. The method of oiling the ram bearings is said to provide ample lubrication for any length and position of stroke. A "sight-feed" or window on the operating side of the machine permits the operator to see the oil as it is forced to the ram bearings.



Forced-Feed Lubrication Has Been Extended to Include Ram Bearings. A new disk clutch is provided and also a new type of support for the table. Both table top and base have been extended

The drive of the machine is through a disk clutch mounted on Timken roller bearings and acting upon a six-splined shaft, ease of adjustment being a feature emphasized. One member of the clutch carries a spring-pin and the other member has a series of holes for receiving the pin. In adjusting the clutch, the pin is withdrawn from the hole in which it was inserted. The member which carries the pin is then rotated to the right or left and the pin is inserted in another hole, selection of the hole being governed by the load to be carried by the clutch.

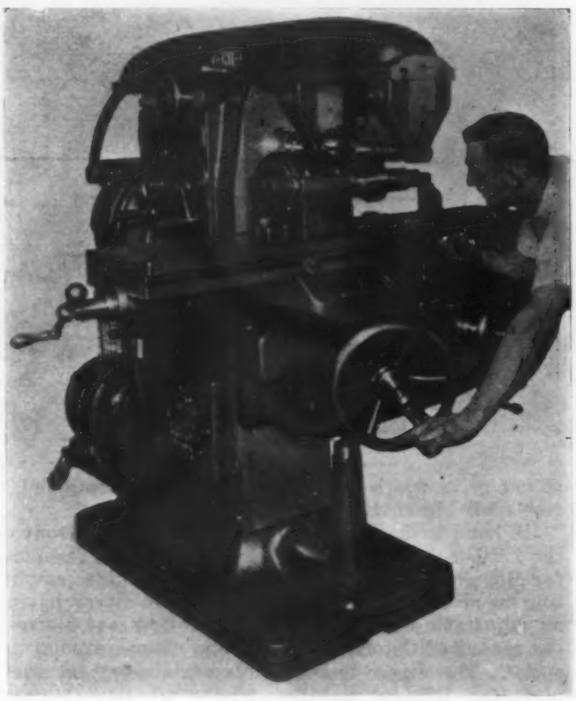
Both the table top and base of the machine have been extended. T-slots in the table top are machined to permit the accurate location of jigs and fixtures. A new type of support, provided for the table, is fastened to and moves with the table, sliding upon a rail secured to the base. Lengthening of the support bearing at the bottom is intended to increase its effectiveness when the table is set at either end of the cross-rail. When worn in service the table-support rail can be removed and trued up conveniently.

A guard around the ram slide is another improved feature. This guard is attached to the rear of the frame, and is intended to prevent injury to operators from the movement on the ram. It also serves to protect the bearing surfaces of the ram, and to catch any oil that works its way past the grooves on the rear end of the ram bearings. A new plate-type vise is also provided for use with these machines. The jaws of this vise are close to the table and the graduations are on a large diameter and on an angular surface. It is claimed that the vise will not creep on the table when the bolts are loosened for angular adjustment.

New Line of Milling Machines

The incorporation of a "Veeflat" overarm to provide maximum rigidity is an outstanding innovation in the design of a new line of constant-speed, all-geared milling machines being placed on the market by the Oesterlein Machine Co., Cincinnati. The new machines are available in six sizes, No. 1, No. 2, No. 2 heavy, No. 3, No. 3 heavy and No. 4.

The heavy cast-iron overarm is of rectangular cross section, as shown in the illustration, the name "Veeflat" being derived from the vee and flat guides that form the bearing and provide alinement of the arbor supports. This design of overarm is also intended to provide a broad and rigid surface to receive the upward thrust of the cut. Clamping of the overarm is by means of a pair of T-slot bolts at the front and a pair at the rear of the column. Each pair equalizes and clamps by means of a nut at the side of the machine. The tee slots in the overarm are placed as close to the vee and the flat contact surfaces as possible, in order to minimize clamping pressure strains in the overarm and column.



A Feature Is the Overarm, Which Is of Rectangular Cross Section With Vee and Flat Guides Forming the Bearing and Providing Alinement of the Arbor Supports

The overarm is equipped with a rack which meshes with a pinion in the column, and a handwheel is mounted on the end of the pinion shaft to permit convenient shifting of the overarm. The ease with which the overarm may be handled for the replacement of arbors or cutters is a feature, the arbor supports being placed on the arbor and the overarm moved forward into position conveniently by means of the handwheel. Both sides of the overarm have finished gaging strips, which are scraped parallel with the center line of the spindle. These strips may be used as locating or gaging points for squaring up work, or for the location of gage blocks when working to close limits.

JOURNAL TURNING LATHE

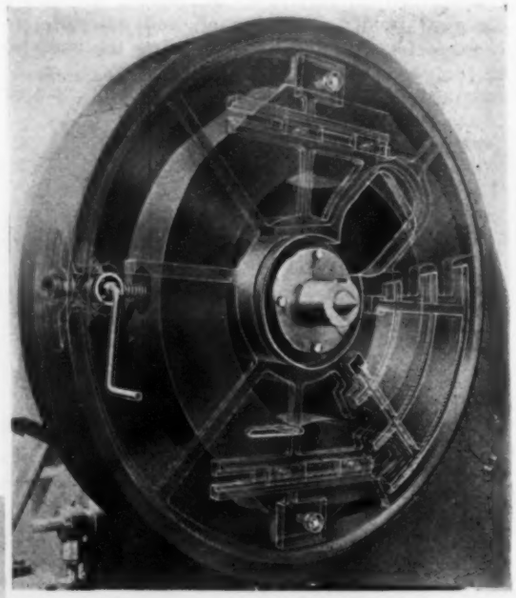
90-In. Production Unit with Attachments for Quartering and Crank-Pin Turning

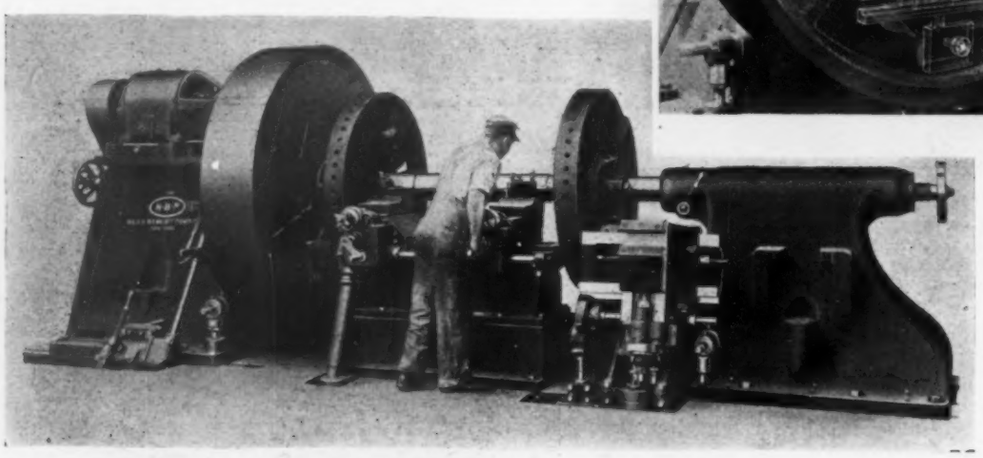
The Niles Tool Works Co. division of the Niles-Bement-Pond Co., Hamilton, Ohio, is marketing the 90-in. journal turning lathe here shown, which, although designed for high-production turning and burnishing of inside and outside journals, can be arranged also with efficient quartering and crank-pin turning attachments.

The machine is furnished in the following combinations to suit individual shop requirements: For inside journal turning only, or for inside and outside journal turning only; or for journal turning and single or double quartering (with or without crank-pin turning attachments). The outside journal turning attachment, quartering and crank-pin turning attachments can be applied after the machine has been in operation.

Three features stressed as assuring true smooth journals are the belt drive arrangement, the mounting of wheels on dead centers, and the adjustable counterbalance in the faceplate.

Power is transmitted from the driving motor on the headstock through a 6-in. belt to a jack shaft and reduction gearing mounted at the back of the headstock. The faceplate is driven from a pulley on the jack shaft through a second 10-in. belt running directly around the faceplate and having contact with the faceplate for over 180 deg. of its circumference. This forms a resilient drive which is claimed to give a smooth finish, free from the chatter or gear marks.





Locomotive Journal Turning Lathe With 90-In. Swing. Belt drive arrangement, mounting of wheels on dead centers and adjustable counter balance in faceplate (shown in phantom view above) are features

A hand brake controlled by a lever on the front of the headstock acts directly on the rim of the faceplate for stopping it in the most convenient position for putting in or taking out the wheel set. A driver having an adjustable extending member projects out between the spokes of the driving wheel and clamps around the spoke. The driver is adjustable radially on the faceplate for different sizes of driving wheels. A pear-shaped opening is provided in the faceplate to receive the crank pin.

Both ends of the axle are carried on non-rotating or dead centers. These centers are heat treated and are mounted in sliding spindles that can be clamped firmly in the headstock.

Wheel Sets Adequately Counterbalanced

Counterweights of locomotive driving wheels exert considerable centrifugal force when revolving in a lathe for journal turning, and for this machine a counterweighting method has been developed for counterbalancing the set and assuring even, true running of the wheels in the lathe. As shown in the phantom view illustration, the counterweight is located entirely within the faceplate. It is a single casting with one simple adjustment for different size wheel sets, this adjustment being through bevel gears and screw. A pointer in the slot indicates the position of the counterweight from zero to maximum counterweighting. The counterweight is guided in T-slots and may be clamped firmly in position.

Both the headstock and tailstock are provided with power traverse along the bed by means of a separate 5-hp. motor driving a revolving screw in the bed. An eccentric clamping mechanism operating at both the front and back of each member is provided for quickly clamping the headstock and tailstock to the head.

The carriage consists of two compound tool rests mounted on a base bolted on the bed between the driving wheels. The tool holders are of the single-screw clamping type and are arranged so that the tools may be set at an angle. The rests are provided with power longitudinal feed for turning journals and power cross feed for facing hub liners. The feeds are reversible and the changes are obtained through a feed box located on the headstock. There are three feeds, 1/32, 1/16 and ⅛ in., per revolution of the faceplate. Provision is made for engaging or disengaging the feed at the rests, and hand adjustment is provided for both longitudinal and cross travel. The rests are arranged to take burnishing rollers, which are furnished with the machine.

The bed is of the box type heavily ribbed and of sufficient length to permit the longest trailer axle to be carried on centers; it is also of ample length to perform the operations of quartering and crank-pin turning when these attachments are ordered. An outside rest for turning the journals of trailer sets is available. This rest is equipped with a pneumatic withdrawing mechanism so that it can be quickly lowered when not in use.

For direct-current the machine is driven by a 15-hp. 220-volt motor of 3 to 1 speed variation. Automatic controller and push button station are provided. For alternating-current the machine is driven by a 15-hp. 220-volt, 3-phase, 60-cycle constant-speed motor with compensator. Four faceplate speeds are provided through a speed box located on the jackshaft at the rear of the headstock. Speed changes are controlled

by a lever on the front of the headstock. A friction clutch with controlling lever at the front eliminates the necessity of stopping the motor when changing speeds.

The quartering and crank-pin turning attachments can be furnished for either single or double quartering and with or without single or double crank-pin turning attachments. Attachments for double quartering are available for left hand as well as right hand lead.

The crank-pin turning attachment is of the improved box tool type, carrying two tools mounted in a revolving sleeve. The sleeve is clamped to the boring bar of the quartering attachment. Adjustment is provided for the various crank-pin throws. When the machine is equipped for outside journal turning the crank-pin attachment is mounted on this bar. Otherwise a separate base is provided.

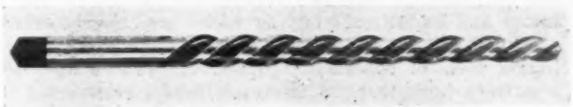
A rigid method is incorporated for supporting the wheels for quartering and crank-pin turning. The wheel set is held on a pin of the V support benches which are adjustable for height by means of screw and worm wheel. The wheels are first brought to proper height by suspending them on the centers and then the supports are elevated until the journals rest on the V's. The centers can then be withdrawn. To bring the wheels into correct position for quartering, an adjustable turnbuckle link is provided. After being adjusted to position, the wheels are clamped rigidly to slotted brackets by bolts and straps. This is said to provide an unusually solid mounting for the wheels.

The swing over the bed of the machine is 90 in. The maximum distance between faceplate and tailstock center is 12 ft., and the maximum distance between centers, 13 ft. The faceplate diameter is 72 in. The length of inside journals turned simultaneously is 22½ in. The minimum diameter of journal turned is 6 in. and the maximum diameter of hub liners faced, 24 in.

Taper Pin Reamer with Spiral Flutes

A spiral-fluted taper pin reamer, in both carbon and high-speed steel, and in nine sizes, from No. 0 to No. 8, has been added to the line of the Morse Twist Drill & Machine Co., New Bedford, Mass.

The tool is designed to take an easy shearing cut and to clear itself readily of chips, its free cutting



Spiral-Fluted Reamer Designed to Give Shearing Cut and Clear Itself Readily of Chips

action being said to adapt it especially for production work. When of carbon steel, it is designated as the No. 683, and when of high speed steel it is known as the No. 1683. The diameter of the small end of the No. 0 reamer is 0.119 in., and of the No. 8 tool, 0.398 in. The taper is ¼ in. per ft.

To Build Two Lake Boats at Lorain

Orders for two Lake freight boats have been placed with the American Shipbuilding Co. by the Interlake Steamship Co., Cleveland, which is managed by Pickands, Mather & Co. The new boats, which will be 600 ft. in length, will be built at Lorain, Ohio, and will be completed in time for the opening of navigation next year. This is the first order for Lake freighters placed for 1927 delivery. The Interlake Steamship Co. recently sold seven of its smaller vessels to the Paterson Steamship Co., Ft. William, Ont.

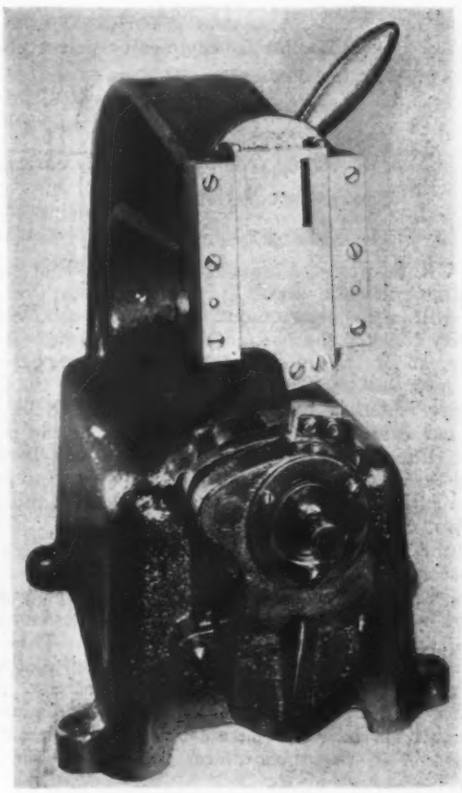
The 1926 Year Book of the American Foundrymen's Association has just been issued, containing an alphabetical list of members up to April 10, 1926. The bound volume of the *Transactions*, No. 33, is on the press and will be mailed in the near future.

Bench Shear for Straight, Circular and Irregular Cutting

The Unishear Co., 170 Fifth Avenue, New York, is adding to its line the shearing machine shown in the accompanying illustration, the cutting principle of which is the same as in the machines previously offered but the frame of which is of C-type with 15-in. or larger throat.

The machine is intended for straight, circular and irregular cutting in any direction, the minimum radius of curves that can be cut on the machine being ¼ in. The clean cut produced and the visibility at all times of the line to be cut are features stressed.

Cold rolled steel up to No. 14 gage and copper up to 12 gage is within the capacity of the machine. On softer material, fiber, rubber, etc., the capacity is proportionately greater. The cutting of corrugated ma-



Bench Shear With C-Type Frame and 15-In. Depth of Throat. The machine is intended for straight, circular and irregular cutting in any direction, cold rolled steel up to No. 14 gage being within its capacity

terial may be accomplished without flattening of the corrugations. On cold rolled steel of No. 14 gage, cutting at the rate of 15 ft. per min. is claimed.

The shear is driven by a ¼-hp. motor, which in being mounted within the lower part of the frame, is out of the way and is protected from dirt and cuttings. A flexible coupling connects the motor to a gear reduction unit, as in the machine previously announced. The shear blade operates at 1250 r.p.m. The upper blade is elevated and lowered to the work by means of the hand lever on shear head. Adjustment of the clearance between the two cutter blades for material of various thicknesses is made by means of shims provided, this feature being stressed as permitting of making a clean and burr-less cut on material of all thicknesses within the capacity of the machine. The cutters used are of high-speed steel and have straight edges, which facilitates sharpening.

The machine is arranged for bench mounting, and is 24 in. long, 10 in. wide and 20 in. high. The weight, including motor, is 195 lb. It is furnished complete with 10 ft. of flexible cable, through-wire switch and plug for connection to light or power circuits.

Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

Favorable and Unfavorable Factors Affecting Business May Be Summarized as Follows:

Favorable Factors

1. Abundant credit and easy money
2. Decline in commodity prices checked
3. Mail order sales large
4. Fairly prompt and orderly curtailment of excess production

Unfavorable Factors

1. The P-V Line declines (indicating that in general the supply of commodities exceeds the demand at current prices)
2. Unfilled orders decline
3. Employment and payrolls of labor decline
4. Building and automobile industries decline
5. Farm prices relatively low
6. Stocks of commodities in first hands too large, on the average

OUR position in the business cycle is of especial interest just now. A glance at the first chart will show that, about 21 months ago, business activity touched the bottom of a minor cycle. In other words, about the middle of 1924 the decline from the 1923 peak came to an end. Since that time the irregular rise which has characterized the last year and a half has carried us well up to or beyond the peak of 1923. The rise is called irregular because it will be noted that, in the early part of 1925, it was interrupted by an intermediate recession which clearly appears in the first chart (Fig. 1).

It now seems that March, 1926, is likely to go down in history as the peak of a cycle. In the first place, in that month the "curves" have the appearance of having reached the highest point, and we know that there has since been a growing recession. This recession appears in commodity prices, in retail and wholesale trade, employment and building activity, to say nothing of the stock market. In the second place, the most reliable business barometers forecast continued recession. In the third place, judging by the usual period of business cycles, it is about time for a recession.

Heavy Freight Movement Continues

RAILROAD tonnage declined in April, our index (adjusted to eliminate the merely seasonal ups and downs) being 111 against 116 in March (the 1921-5 average being 100). March freight traffic was the heaviest since May, 1923. Nevertheless, the recent peak —if it be the peak—cannot be called pronounced. Obviously there has been a rather long-drawn-out, flat top, indicating a stable level during the last year and a half. There has been no violent rise and, allowing for normal growth, railroad tonnage has not been so abnormally high as it was in 1923.

The bank debits curve is different, notably in the sharp rise which occurred in the latter part of 1925 and early 1926. This rise reflects the volume of speculation and installment buying which was characteristic of that period. It also was influenced a little by the higher level of commodity prices. To some extent the relatively high level of the bank debits curve may be

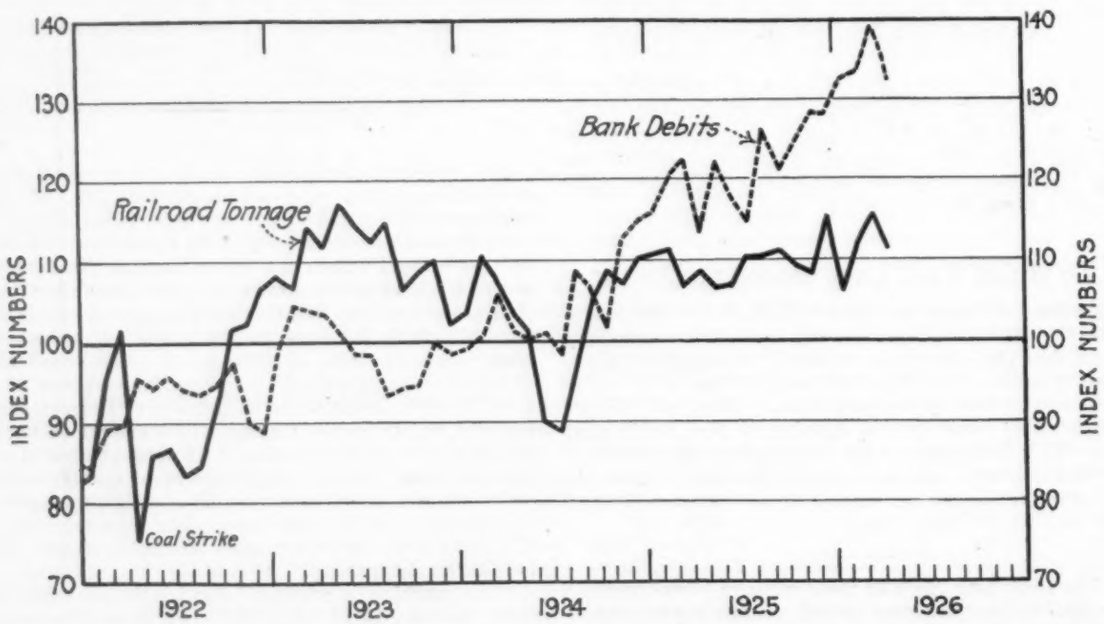


Fig. 1—The Adjusted Index of Railroad Tonnage Has Been Fairly Stable for More Than a Year. Bank debits, which have been breaking records for several months, now are moving downward

In This Issue

High cost of selling demands attention.—"When the expenses of a traveling salesman reach an average of approximately 6 per cent (of his sales) the danger signal should be sounded," says mill supply dealer.—Page 1504.

Don't go outside the organization to fill vacancies, says Harvester Company official.—Keep a record of promising employees; learn their deficiencies so that you may correct them; then you will be able to fill vacancies from the ranks, which makes for a strong organization.—Page 1550.

Building activity will not decline sharply, says Dr. Haney.—Though labor costs are high, easy credits and lower interest rates will tend to sustain building volume.—Page 1516.

Is it more economical to use heat-treated die blocks than annealed?—Though it takes 20 per cent longer to sink heat-treated blanks, avoidance of breakage and distortion, which is risked in hardening, makes their use preferable, says speaker at Steel Treaters' meeting.—Page 1499.

Valuable floor space is saved by elevating drying ovens.—Metal furniture manufacturer now uses for other manufacturing purposes 80,000 sq. ft. formerly occupied by ovens.—Page 1487.

"Shopping around" does not pay.—"Confine your inquiries and orders to well-established, responsible sources of supply . . . and in the long run you will buy to the best advantage," says purchasing executive.—Page 1502.

"Better merchandising" will spell higher profits for steel industry, says Grace.—With automobile industry making between 10 and 25 per cent, steel industry averages only 5 per cent profit on capital investment.—Page 1490.

Blast furnace increases output sharply by using another kind of coke.—Ironton furnace brought average daily output up 13 per cent by changing to Pocahontas beehive coke.—Page 1494.

How the proper speed for machining alloy steel can be judged.—A hot temper-colored chip is a practical indication of the right speed for a good high-speed finish.—Page 1547.

What has the immediate future in store for business?—A further recession, lasting probably four to five months, is forecast by the P-V Line. The supply of goods at present prices is in excess of demand; equilibrium needs to be established by price reductions and curtailment of output, says Dr. Haney.—Page 1515.

Machine tool dealer recommends that builders' representatives refrain from selling.—Friction with dealer's salesmen caused by machine tool builders sending out salesmen to call on users.—Page 1505.

No hope for decrease in price competition, says Cleveland banker.—Believes that price competition will increase and that higher net earnings will come from reduced manufacturing costs rather than from greater sales effort.—Page 1561.

Goggles cut eye injury compensation 76 per cent.—Insisting that goggles be worn *all* the time drastically reduces eye accident cases for forging company.—Page 1561.

Does phosphorus increase the resistance of soft steel to corrosion?—Metallurgist declares that after considerable investigation he can find nothing to prove that this general belief is correct.—Page 1553.

Danger lies in limiting purchases to one source.—Buyers should be careful not to get out of touch with markets. Confining buying to a single source frequently results in overlooking someone who may be able to supply equal quality at a lower price.—Page 1502.

Reinforced concrete industry is growing rapidly.—From insignificance 25 years ago, it now does an annual business approximating 1.5 billion dollars.—Page 1496.

Drop forging industry is over-expanded, says Forging Institute head.—Tendency to extend departmental forge shops is inadvisable, considering that industry can operate at only 60 per cent of capacity even with maximum consumption.—Page 1517.

Recommends that "open line" machine tool builders discontinue quoting prices to other than accredited machine tool dealers.—Price-cutting evil said to be fostered by granting selling privilege indiscriminately.—Page 1505.

CONTENTS

May 27, 1926

Conveyor System Makes Roof Work 1487
Steel Bookings Gain in May 1490
Steel Treaters Expand Activities 1497
Stress Stabilization in Sheets 1500
To Organize 500 Trade Bodies 1502
Machinery Dealers Discuss Problems 1505
Forging Business Situation 1517
Further Duties on German Steel 1518
Exports and Imports Much Higher 1520

Large Gift for Engineering 1516
Index to New England Industrial Industry 1516
Quenching Various Shapes of Steel 1516
Sesquicentennial Statue Given 1525
Jones & Laughlin Mileage Scale 1544
Appoints Endowment Committee 1548
Keep File of Promising Employees 1550
A New Aluminum Alloy 1552
Canadian Ferromanganese Not "Dumped" 1552
To Study Furnace Slags 1555
Discuss Steel Residence Construction 1555
Europe's Business Conditions 1558
Meehanite, New Cast Iron 1559
New Trade Publications 1562

MEETINGS

American Iron and Steel Institute 1490
Independent Sheet Steel Companies 1500
American Supply and Machinery Manufacturers 1502
Associated Machine Tool Dealers 1505
American Drop Forging Institute 1517
American Refractories Institute 1525

NEW EQUIPMENT

Pneumatic Tools 1506
Single-Unit Worm-Gear Speed Reducers Made in Three Types 1507
Tools for Locomotive Boiler Work 1507
Duplex Machine for Slotting Plain and Castellated Nuts 1508
Device for Loading Sand Blast Mill 1508
Improved Features Incorporated in G. & E. Line of Shapers 1509
Line of Milling Machines 1509
Locomotive Journal Turning Lathe 1510
Taper Pin Reamer with Spiral Flutes 1511
Bench Shear for Straight, Circular and Irregular Cutting 1511

STATISTICAL

Castings Output Higher 1542
Heavy Fabricated Plate Tonnage 1542
Steel Furniture and Shelving 1544
British Iron and Steel in April 1552
France Exports More Industrial Machinery in 1925 1552
Output of Refined Primary Lead 1555
Steel Companies' Earnings Analyzed 1560

DEPARTMENTS

Business Analysis and Forecast 1512
Editorial 1522
Iron and Steel Markets 1526
Comparison of Prices 1527
Prices, Raw and Finished Products 1529-1531
Non-Ferrous Metals 1543
Personals 1545
Obituary 1545
Structural Awards and Projects 1546
European Steel Markets 1551
Machinery Markets 1563

An Aid to Eclectic Reading

THIS and last week's issues serve well to prove the value of the tabloid of the reading contents, to be found on the other face of this bordered sheet. There were in the May 20 number, exclusive of the markets and other regular "bread and butter" features, 115 separate articles and items of technical and commercial importance. Since the first of the year the number of reading pages has averaged 75. The current issue is comparable in number of words with two normal works of fiction.

To get the maximum value out of THE IRON AGE every week one may run through the digest of outstanding contributions, if he cannot secure an assistant regularly to mark matters for his attention. The tabloid is not a substitute for the reading but a vitalizer of every issue for the busiest of the busy.

For News Summary See Reverse Side

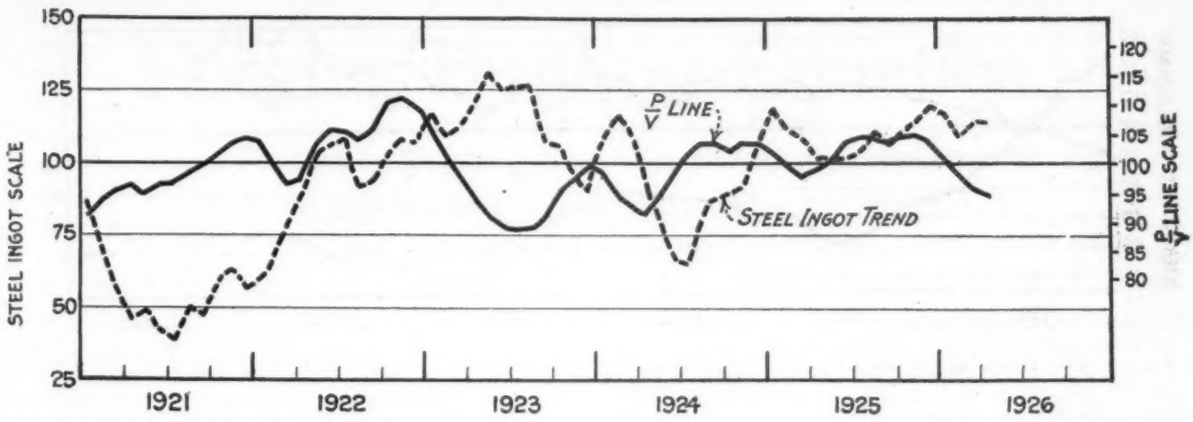


Fig. 2—The P-V Line, Representing the Ratio of Commodity Prices to the Physical Volume of Trade, Generally Anticipates the Trend of Business by About Five Months. It turned downward in December and now is well below normal

considered excessive and a manifestation of over-speculation, which has resulted in the volume of checks drawn being in excess of the volume of commodities produced and shipped.

Bank debits declined rather sharply in April, the average weekly debits in that month being only $12,602,000,000 against $13,259,000,000 in March. Thus far in May the figures average $12,428,000,000.

It seems probable that both the curves will decline during the next few months, but that the bank debits curve will decline more sharply than the tonnage curve. If this conclusion proves well founded it will indicate that we have passed the peak of another business cycle.

General Barometer Below Normal

OUR best barometer of general industry, the P-V line, continued downward in April, thus forecasting further recession in business which will last probably for four or five months. The barometer indicates that the supply of goods is in excess of demand, in the sense that the goods cannot be disposed of at current prices. It means a tendency to lower prices and reduced profits. The general situation is one in which equilibrium needs to be restored by price reductions and curtailment of output.

The P-V line has usually led the curve of steel ingot production by several months and the present appears to be no exception. Even the double peak in our adjusted ingot curve resembles the P-V line a few months back (see Fig. 2). Curtailment is now on in steel production and it may be expected to carry the output below the low point in 1925—though it is not claimed that the P-V line is an accurate forecaster as to levels of production.

The point is that ingot production is above normal (due to a similar condition in the activity of the consuming industries), while the P-V line is moving downward and is below normal, which means an unfavorable forecast for the steel-consuming industries. Therefore production certainly will be curtailed during the next few months.

Unfilled Orders and Scrap Now Low

AS usual, the unfilled orders barometer confirms the forecasts of the P-V line. The rate of change in the unfilled orders of the Steel Corporation was much lower in April, bringing the barometer curve below the 1925 bottom and nearly down to the low point of 1924. It is frequently argued that the unfilled orders have lost their significance. We hold, however, that, while the quantity of unfilled orders is not so significant as it formerly was, its trend is as significant as ever and the direction of its movement is a valuable barometer both for the steel industry and for general business. The fact that the backlog of the steel industry is being cut into at an increasing rate is an unfavorable indication.

The price of steel scrap justified its reputation as a sensitive indicator of business trends. It is sometimes forecast by the unfilled orders barometer, but both of the curves turned down in December last year and have since continued to decline (see Fig. 3).

The most hopeful indication is that both unfilled orders and steel scrap prices are at present at pretty low levels, not far from the point at which upturns have begun in the last three years. If our curves were to hit bottom in another month or two and then turn up, improvement toward the end of the year would be indicated.

Decline in Building

BUILDING activity, as measured by the F. W. Dodge data as to square feet of floor space contracted for, has shown a declining trend since January, due allowance being made for seasonal variations (Fig. 4). Contemplated construction and building permits, also, have declined in amount. The Bradstreet report of permits in 152 cities in April was 10 per cent lower than a year

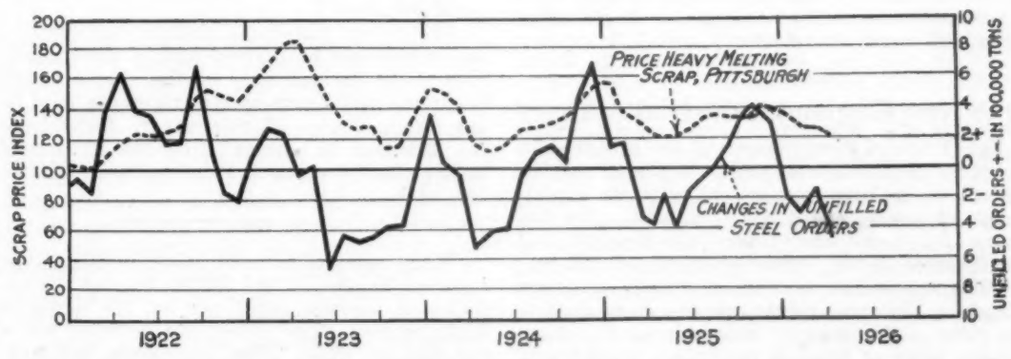


Fig. 3—The Curve Showing the Rate of Change in Unfilled Orders Last Month Accentuated the Downward Trend Which Has Been in Evidence for Several Months

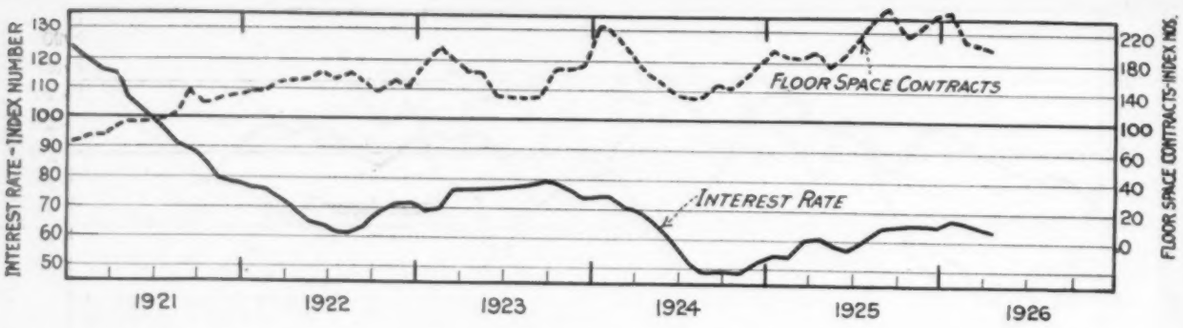


Fig. 4—The Index Based on Square Feet of New Building Contracts Awarded Was in April at the Lowest Point Reached Since Last June

ago and the total for the first four months is also slightly below the same period in 1925.

A study of the building data indicates that the end of a long period of expansion has been reached. There is no longer any shortage, rents are lower, and building costs are inflated on account of the high wages of the laborers employed. It is to be repeated, however, that building activity is still large and nothing but a rather gradual decline is in prospect.

Money rates have played their part in affecting the building situation. The building peaks in early 1924 and late 1925 were due in part to the very low money rates of mid-1922 and late 1924. The rising interest rates since the latter date have tended to bring an end to the building boom. Now, however, money rates are again declining, due to the large supply of bank credit, declining commodity prices and small commercial demands for funds. This decline will tend to sustain building activity and is another reason for anticipating no sharp recession in the near future.

The schedule of the next installments of the ***Business Analysis and Forecast,*** *by Dr. Lewis H. Haney, Director, New York University Bureau of Business Research, is as follows:* ***June 10****—Activity in Steel Consuming Industries;* ***June 17****—Position of Iron and Steel Producers;* ***June 24****—General Business Outlook.*

LARGE GIFT FOR ENGINEERING

E. D. Adams Contributes $100,000 to Engineering Foundation and Engineering Societies Library

A gift of $100,000 by Edward Dean Adams to Engineering Foundation and Engineering Societies Library was announced at the May 19 meeting of Engineering Foundation by W. L. Saunders, president of United Engineering Society and chairman of its endowment committee. Mr. Adams was guest of honor at the meeting and in appreciation of his service as vice-chairman of Engineering Foundation for ten years was elected an honorary member for life. The only other honorary member of the foundation is the founder, Ambrose Swasey. Mr. Adams was presented a beautifully bound and illuminated vellum book recording the testimonial and signed by all present and former members of Engineering Foundation board. The announcement of his large gift came as a surprise.

Mr. Saunders also announced that United Engineering Society had first-hand knowledge of four wills of living persons containing bequests for Engineering Foundation, of unknown amounts.

Index to New England Industrial Activity

The New England Power Company has prepared an analysis of its distribution of power in the 12 months ended April 30, making comparisons with its experience in the 12 months ended April 30, 1925. The figures ignore all new customers taken on in the year, and also all increases in the power contracts of old customers. The comparison is confined strictly to power consumption in the same plants and the same departments of plants. The analysis is considered, therefore, a dependable index of business conditions, particularly in manufacturing industry, in the great territory served by the New England power system, comprising large sections of Massachusetts, important industrial regions in Rhode Island and Vermont, and parts of New Hampshire and Connecticut.

Power supplied to the textile industry increased 14.1 per cent, to the metal industries 16.6 per cent, to the rubber industry 24 per cent, and to miscellaneous industries 21.6 per cent. The paper manufacturers took 1 per cent less power than in the preceding year.

Quenching Various Shapes of Steel in Water, Oil or Air

In quenching steels from the customary hardening temperatures into such ordinary coolants as water, oil, or air, the experimental data given in a publication just released by the United States Bureau of Standards show that a given size and shape cools in equal time to equal proportions of the cooling range. The data also show that the cooling time at the center of the sample, minus a factor called "lag," for which a chart is included in the report, is inversely proportional to the surface per unit of volume raised to some power greater than 1 and less than 2.

The report includes a method whereby center cooling curves can be derived with a good degree of accuracy for various sizes of the simple shapes cooled in various media such as are originarily used in hardening steels. Copies of this paper, Technologic Paper, No. 313, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, at 10c. each.

Wage rates of common labor in effect April 1 are reported by the United States Bureau of Labor Statistics to average 40.5c. per hr. for newly employed unskilled men. The lowest rate reported was 15c., and the highest, 62.5c. The automobile industry showed the highest average rate at 47c.; the sawmill industry, the lowest, at 32.4c.

Forging Business Situation

Drop Forgers in Meeting Last Week Discuss Also General Industrial Conditions—Accident Prevention and Cost Accounting Among Other Topics

X-RAYS were turned upon the drop forging industry, May 20, 21 and 22, at French Lick Springs, Ind., at which time and place the American Drop Forging Institute met for its spring convention. Problems relating to all departments of the industry, administrative, finance, sales, cost, accident prevention and metallurgical, were discussed.

Over-expansion of the drop forging industry was commented on by L. W. Greve, president of the institute and president of the Champion Machine & Forging Co., Cleveland, who pointed out that there is still a strong tendency upon the part of some customers to make this condition worse by establishing or extending departmental forge shops. An understanding of the over-expansion of the industry has brought institute members to the knowledge that they cannot operate at 100 per cent when the maximum consumption of their products is only 60 per cent. They have also come to understand that it is more profitable to run at 60 per cent on jobs that pay than to try to run at 100 per cent and take a long chance. Mr. Greve was of the opinion that much of value can be accomplished by having the engineers associated with the institute impart technical knowledge to the public and compile a text book suitable for use in technical schools.

Three Essentials of a Successful Business

SOME administrative problems were dealt with in an address by H. G. Stoddard, vice-president and treasurer Wyman-Gordon Co., Worcester, Mass., entitled "The Drop Forge Industry."

In times of prosperity and advances in markets, said Mr. Stoddard, apparent success comes to many but unless a business is based on a foundation more firm than that afforded by profits in boom periods, its existence will be precarious and unsatisfactory. All failure, regardless of circumstances, represents an economic loss.

Character, knowledge and financial strength are the essential fundamentals in the conduct of a successful business, he said. The foundation of business is really confidence which springs from integrity, fair dealing and efficient service. Everyone recognizes the need for character in personal relations but practices frequently creep into organizations, whether they are business or political, which individuals would not countenance in their own personal dealings. Strict standards of honor and the recognition of the rights of others must become the inflexible rule of industry. The profit obtained by sharp practice is never permanent.

Wider knowledge of the productive capacity of the industry, the trend of raw material markets, the cost and determination of one's normal volume and the nature of the products likely to bring demand from the consumers and reasonable profits to the business, was urged. The low average of profits being obtained in some industries, it was said, can be attributed directly to the continuous striving of manufacturers to obtain greater and greater volume of sales, often producing more than the immediate market can absorb. Low price does not always increase consumption but often simply shifts the trade around from one manufacturer to another at large cost to the industry as a whole and eventually to the public.

Fair Profit and Safe Reserve

A business to be permanent must have financial strength as well as character and knowledge. The reward of business for services rendered is a fair profit and a safe reserve commensurate with risks involved and foresight exercised. Most basic industries since the war have had an excess of capacity as compared to the demand. At various stages in their development many lines of industry are confronted with entirely new and different business conditions. In any industry where changing conditions are found experience has taught that one of two or three contingencies develop. Commercial warfare may result until the law of the survival of the fittest gives the answer. Consolidations may be brought about which affect economies, or cooperation within an industry may result. This latter involves the common study of all the problems of the industry. This should follow along the lines of cooperative research, analysis of markets, reduction of cost, and increase in the quality of product and service which the industry renders.

The record of the drop forging industry was said to show that the volume of its business has not increased proportionately with that of the trade which it serves. The average automobile part maker, forging or otherwise, failed to recognize the tremendous growth of the automotive industry which he serves and consequently curtailment of his market is the basic cause of some of the problems confronted today.

Says Industry Is Passing Through Corrective Period

THAT industry in the United States is apparently passing through a corrective period which will likely continue through the summer and into the early fall, was a view expressed by Allard Smith, vice-president of the Union Trust Co., Cleveland. No industry can expand continually, there must come a period of reaction. Opinion generally is that in the present period fundamentals will not be weakened. The current softness of business, extending through almost all industry, results in no small part from the country-wide unseasonable weather conditions. Building continues at a pace which has been a surprise to almost everyone, although speculation in real estate and building has practically ceased. Railroad loadings as compared with last year continue to climb, but railroad purchases, aside from track supplies, have been light.

Mr. Smith believes that there is no cause for uneasiness and that business men are digging in for a period of tense competition and their rigorous study of cost-reducing methods already shows itself in the heavy volume of inquiries prevalent among manufacturers of labor-saving machinery. The increase in activity which seems probable early in September or October will carry premiums to the manufacturer who devotes the present interval to a thorough study of cost reducing methods. Intense price competition seems more likely to increase than to diminish and the increase in net earnings most probably will be found in manufacturing costs rather than in sales effort; also in reduced overhead and intensive application to the job.

(*Continued on page* 1561)

Further Duties on German Steel

Treasury Department Issues an Order Adding Existing Bonuses to the American Tariff on Imports from Germany—Pig Iron Included

WASHINGTON, May 25—By a formal order of the Treasury Department a countervailing duty has been imposed on pig iron, steel ingots and rolling mill products from Germany, in view of the payment of rebates or subsidies to iron and steel exporters of that country. The order as issued by Assistant Secretary Andrews provides for a retaliatory duty equal to the bounty or subsidy thus employed. The announcement comes upon the heels of a similar notice regarding exports of pig iron by the Tata Iron & Steel Co. from India to the United States. These two actions present results of campaigns started by domestic producers of pig iron and iron and steel products against what they regard as unfair competition from abroad. The countervailing duty against Germany goes into effect on June 13.

Tariff Act of 1922 Invoked

Section 303 of the tariff act of 1922, under which the Treasury Department has proceeded, is as follows:

> Sec. 303. That whenever any country, dependency, colony, province, or other political subdivision of government, person, partnership, association, cartel, or corporation shall pay or bestow, directly or indirectly, any bounty or grant upon the manufacture or production or export of any article or merchandise manufactured or produced in such country, dependency, colony, province, or other political subdivision of government, and such article or merchandise is dutiable under the provisions of this act, then upon the importation of any such article or merchandise into the United States, whether the same shall be imported directly from the country of production or otherwise, and whether such article or merchandise is imported in the same condition as when exported from the country of production or has been changed in condition by remanufacture or otherwise, there shall be levied and paid, in all such cases, in addition to the duties otherwise imposed by this act, an additional duty equal to the net amount of such bounty or grant, however, the same be paid or bestowed. The net amount of all such bounties or grants shall be from time to time ascertained, determined, and declared by the Secretary of the Treasury, who shall make all needful regulations for the indentification of such articles and merchandise and for the assessment and collection of such additional duties.

According to reports received by agents of the Treasury Department, the Raw Steel Syndicate, Duesseldorf, has agreed with the Association of Iron Consuming Industries within the Association of Industries of the German Reich, in Charlottenburg, whereby the Iron Consuming Industries or its member associations issue certificates covering quantities of exported goods. These are used in part payment for re-orders placed with the Raw Steel Syndicate plants, the amount of credit on each certificate allowed being the difference between the inland prices of the commodity and the world market prices.

Holding that the certificate plans constitute a bounty, although arranged privately and not by a governmental policy, the Treasury has ordered suspension of liquidation of entries covering all rolling mill products and their manufactures imported or withdrawn from customs custody after 30 days from publication of the order.

Export Bonuses on German Steel Products

THE bonuses paid on German iron and steel products range from as low as $2.38 per ton on ingots up to $13.10 on tubes, the majority of products coming within a range of $3.57 to $5.95. The addition of these amounts to the regular duties will be effective to a large extent in shutting out the penalized product. It is a matter of surprise that pig iron is included in the Treasury's countervailing decision. It does not appear that a bonus is paid on exports of pig iron from Germany, though for a time the German coal syndicate was reported to be paying a bounty on coke used in the production of export pig iron.

It is to be noted that Germany makes but a small contribution to the stream of iron and steel imports to the United States, in comparison with Belgium. In the calendar year 1925 these imports from Germany were 105,094 tons, of which 75,052 tons, or much the greater part, was pig iron, only 30,000 tons being semi-finished and finished steel. Belgium, on the other hand, sent 168,990 tons to the United States last year. Of this, 11,068 tons was pig iron and 6874 tons cast iron pipe. The total of steel products from Belgium last year was thus over 150,000 tons, or five times as much as from Germany. In the first four months of this year our iron and steel imports from Germany were 67,546 tons, of which 52,000 tons was pig iron.

The average German domestic price, average export price, and amount of bonuses February, 1926, per metric ton paid on German iron and steel products, stated in dollars, calculating 4.20 reichmarks to $1, are given below together with the American duty per gross ton:

	Average Price in Germany	Average German Export, Price	February, 1926, Export Bonuses, Metric Ton	American Duty, Gross Ton
Ingots	$24.80	$22.42	$2.38	6.72*
Blooms	26.37	22.80	3.57	6.72*
Billets	26.60	23.03	3.57	6.72*
Sheet iron	29.60	26.03	3.57	6.72
Bar iron	32.00	26.76	5.24	6.72
Structural iron	31.25	26.25	5.00	5.60
Universal iron	a	a	4.05	11.20
Band iron	36.75	30.80	5.95	5.60 min.
Rolled wire	33.25	28.49	4.76	6.72
Medium thin plate (3-5 mm.)	35.50	31.93	3.57	12.32 to 16.80
Thin plate (1-3 mm.)	40.15	37.77	2.38	
Thin plate (under 1 mm.)	42.90	39.33	3.57	
Thick plate	35.54	30.78	4.76	11.20
Best quality thin plate for dynamos	a	a	5.95	...
Best quality thin plate for transformers	a	a	9.53	...
Tubes	a	a	13.10	16.80
Rails and sleepers (light)	a	a	5.95	2.24
Rails and sleepers (heavy)	a	a	5.95	2.24
All Thomas quality				

a—No figures available.
*Valued between 1c. and 1.5c. per lb. Valued not over 1c., $4.48.

Imports from Germany of Iron and Steel Products, Gross Tons

	1925					1926				
	*Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	Total
Pig iron	1,409	5,351	3,351	3,550	9,200	8,395	16,869	13,900	13,529	75,554
Ingots, blooms, etc.	895	....	50	349	....	109	....	498	28	1,929
Bar iron	....	....	13	....	37	3	....	24	....	77
Shapes	15	2	109	389	355	390	737	311	772	3,080
Rails and splice bars	330	349	274	387	483	908	168	62	1,184	4,145
Boiler and other plate	212	209	164	135	....	....	....	....	26	746
Sheets, plates, etc.	62	....	....	....	....	18	115	66	404	665
Wire rope	40	60	75	147	45	2	11	117	74	571
Flat wire and strip steel	9	17	9	11	34	11	11	8	17	127
Wire rods	....	....	....	....	....	....	....	....	111	111
Tubes	1,202	1,324	2,695	2,169	2,750	1,115	561	787	908	13,511
Hoops, bands, etc.	119	36	31	104	209	105	112	319	649	1,684
Totals	4,293	7,348	6,771	7,241	13,113	11,056	18,584	16,092	17,702	102,200

*Bonus on steel products understood to have applied, beginning with August, 1925.

Treasury Order Takes in Fourteen Classes of Products

Below is the full text of the order as issued:

"The Department is advised of an agreement between the Raw Steel Syndicate of Duesseldorf, Germany, and the Association of Iron Consuming Industries within the Association of Industries of the German Reich, in Charlottenburg, under which the Association of Iron Consuming Industries or its member associations issue to manufacturing consumers certificates may be used in payment of re-orders for rolling shown to have been exported, plus waste, which certificates may be used in payment of reorders for rolling mill products placed with plants of the Raw Steel Syndicate, in order to enable such manufacturing consumers to obtain at world prices (average prices f.o.b. ocean harbor obtained by members of the Raw Steel Syndicate for the preceding four weeks) a quantity of rolling mill products equal to the quantity exported during any particular month.

"It is agreed that the certificates shall show in reichmarks an amount equal to the difference between the inland price and the world market price as fixed for the month of exportation for the quantities and kinds of rolling mill products exported or used in the manufacture of exported products, and that they may be used by the manufacturing consumers in payment of re-orders of rolling mill products at inland prices from works of the Raw Steel Syndicate to the amount of such difference.

"The Department is of the opinion that such allowance or bonus constitutes a bounty within the meaning of section 303 of the tariff act of 1922, and that countervailing duties in the amount of such bounty should be assessed on the importation of German rolling mill products or manufactures thereof. Collectors of customs are accordingly authorized to suspend until further notice the liquidation of entries covering merchandise of the following named classes or manufactures thereof from Germany, imported or withdrawn from warehouse after 30 days after the publication of this decision in the weekly Treasury Decisions:

Pig iron (roheisen), ingots (rohblöcke) or blooms (vorblöcke), billets (knüppel), sheet bars (platinen), shapes (formeisen), bar iron (stabeisen), universal shapes (universaleisen), band iron (bandeisen), wire (walzdraht), railroad material (eisenbahnoberbaumaterial), gas tubes (gasröhre), steam tubes (siederöhre), boiler plate (kesselbleche), sheet iron (grobbleche) (mittelbleche) (feinbleche) (dynamobleche) (transformatorenbleche).

"The Secretary of State has been requested to instruct the various American consular officers in Germany to require on each invoice of such merchandise a statement as to whether a certificate such as is described above has been or will be issued upon the exportation of the shipment and, if so, the amount of the bonus allowed, such information to be verified whenever practicable by the consular officer."

IMPORTERS FACE LOSS

Contracts Affected by Treasury Decision—Withdrawal of Export Bounties Requested

As the decision of the Treasury Department became known to most importers of steel only a few days ago, there is considerable confusion as to its exact effect on their business. Its rigid enforcement will, of course, prevent any further importation of German steel, except possibly an occasional shipment from such a producer as Friedrich Krupp A.G., which is not a member of the German Raw Steel Syndicate. The immediate consequences of the decision are serious to the importers, as contracts for steel to be delivered during the next three to four months are affected. One large importer, the direct representative of a German mill interest, estimates that 30,000 tons or more of steel products are under contract for future delivery. Unless these contracts are liquidated or the consumer agrees to accept Belgian, French or Luxemburg steel instead, the importer may be forced to absorb the extra duty imposed. In one instance an importer has made all contracts with a clause releasing him from any responsibility for changes in the tariff or railroad freight rates in the United States.

The method to be employed in determining the extra duty to be imposed on German material is evidently not clear. The bounties paid by the German syndicates are claimed by importers to vary from 2-m. to 10-m. per ton. All German rolled products receive this deduction for export. In the case of a rolling mill, which purchases its billets or blooms in the open market the method of payment is obvious. In the case of a large mill interest which produces everything from the raw material to the finished product, a paper transaction takes place on every ton of billets or blooms produced for its own rolling mills, the semi-finished steel being sold to the German Raw Steel Syndicate of which the producer is a member, and afterwards sold back to the producer at a profit to the syndicate. If the material is rolled for export, a drawback is allowed as in the case of any rolling mill purchaser. The producer eventually participates in the profits of the syndicate.

Efforts are being made by importers in the United States to have the German Raw Steel Syndicate withdraw all export bounties, or, should this not be feasible, eliminate shipments to the United States from the list of exports on which a bounty is allowed. It is also being suggested that the German Government should protest the decision as being in contravention of the treaty between the two countries, which contains a "most favored nation" clause. Such protest would be based on the claim that German export prices are governed by competition with other steel producing nations of Europe and that the bounties paid are all within the industry.

With the decision of the Treasury Department unclarified, sales of steel by German importers have been suspended, as any estimate of costs is at present impossible.

Exports and Imports Much Higher

Shipments Gain in Many Lines—Canada Takes 36 Per Cent of All Exports in First Four Months—England and Germany Lead in Imports

WASHINGTON, May 25.—Aggregating 194,449 gross tons, exports of iron and steel in April were the highest since January, 1924, when they amounted to 247,942 tons. Imports in April totaled 112,255 tons and were the highest since January, 1923, when they amounted to 120,078 tons. The export movement in January, 1924, was unusually large because of shipments to Japan for reconstruction work, 46 per cent of the total for the month going to that country. The next nearest record in exports of iron and steel in recent years was in May, 1923, with a total of 203,389 tons.

Export gains in April of the present year over March, when the total was 169,438 tons, were rather consistent throughout the entire list of commodities, with declines of small quantities in some lines. Interest is being shown as to the possibility of exports in May and June showing increases over April as the result of the British strike. It is thought that increases might be made, particularly in such lines as tin plate, and black and galvanized sheets, for which Great Britain has unusually large foreign markets.

Increase in imports in April over March, when the total was 93,107 tons, was due largely to greater incoming shipments of structural shapes, cast iron pipe and ferromanganese. There was a slight decrease in imports of pig iron in April, the total being 54,359 tons. The latter was the heaviest single commodity of import for the month.

Of the exports in April Canada was by far the leading country of destination, taking 64,082 tons, while for the first four months of this year Canada took 252,504 tons of the total exports of 695,659 tons. Japan ranked second as the country of export in April and the four-month period, taking 29,850 tons and 96,265 tons, respectively. South America took 30,543 tons of iron and steel from the United States in April and 120,130 tons for four months ended with April, the latter figure comparing with 117,236 tons for the corresponding period one year ago. North America, Central America and the West Indies took 90,583 tons in April,

United States Imports of Pig Iron by Countries of Shipment

(In Gross Tons)

	April	March	February	January	4 Mo.
British India	9,798	14,558	9,990	9,329	43,675
Netherlands	8,330	9,231	6,670	7,173	31,404
Germany	13,529	13,900	16,869	8,395	52,693
United Kingdom	15,651	12,250	15,826	15,833	59,560
Canada	939	559	593	540	2,631
Belgium	650	1,733	1,230	930	4,543
France	5,051	2,150	7,691	4,663	19,555
Other countries	411	444	253	1,560	2,668
Total	54,359	54,825	59,122	48,423	216,729

and 347,448 tons for the first four months of the current year, comparing with 286,761 tons for the corresponding period of one year ago. Europe took only 17,851 tons in April, 50,797 tons for the first four months of 1926 and 33,967 tons for the corresponding period one year ago. The Far East took 54,300 tons in April of the present year, 172,208 for the first four months of 1926 and 99,290 tons for the corresponding period one year ago. Japan took increasing tonnages of black steel sheets and steel rails from American mills in April of the present year.

The figures of the Department of Commerce, show

Exports of Iron and Steel from the United States

(In Gross Tons)

	April		Ten Months Ended April		Calendar Year Through April	
	1926	1925	1926	1925	1926	1925
Pig iron	2,010	1,632	28,111	24,740	6,640	6,380
Ferromanganese	2	3	1,586	3,180	170	3,056
Scrap	13,759	6,101	76,728	41,947	37,252	14,751
Pig iron, ferroalloys and scrap	*15,771*	*7,736*	*106,425*	*69,867*	*44,062*	*24,187*
Ingots, blooms, billets, sheet bar, skelp	5,966	5,840	72,708	77,718	16,512	20,942
Wire rods	1,201	1,991	14,969	15,106	6,708	8,117
Semi-finished steel	*7,167*	*7,831*	*87,677*	*92,824*	*23,220*	*29,059*
Steel bars	13,096	9,427	105,081	80,452	48,903	39,470
Alloy steel bars	508	194	3,352	2,607	1,965	1,504
Iron bars	509	454	3,114	3,510	1,284	1,752
Plates, iron and steel	10,397	11,728	93,649	66,723	43,026	34,376
Sheets, galvanized	17,746	12,093	134,288	125,180	67,732	69,110
Sheets, black steel	17,760	7,793	120,120	91,982	62,199	26,880
Sheets, black iron	1,328	639	16,511	9,446	7,944	3,774
Hoops, bands, strip steel	4,082	3,259	39,492	27,072	18,340	12,800
Tin plate; terne plate	22,124	14,389	156,108	118,941	72,502	56,279
Structural shapes, plain material	11,616	8,853	105,428	85,008	44,356	29,574
Structural material, fabricated	7,936	6,929	73,750	57,366	32,687	23,417
Steel rails	15,859	11,693	121,384	148,313	45,291	43,422
Rail fastenings, switches, frogs, etc	2,613	3,693	33,433	25,183	14,739	9,247
Boiler tubes, welded pipe and fittings	25,910	27,077	227,628	164,038	97,580	72,525
Plain wire	3,358	3,016	30,189	25,057	13,728	12,682
Barbed wire and woven wire fencing	5,997	7,073	55,229	73,194	21,295	25,027
Wire cloth and screening	141	....	1,622	1,005	582	598
Wire rope and cable	947	....	4,338	3,361	4,780	4,554
Wire nails	1,242	735	9,920	8,300	4,240	2,908
Other nails and tacks	738	842	7,547	7,303	2,945	3,295
Horseshoes	30	35	597	648	225	224
Bolts, nuts, rivets and washers, except track	1,471	1,714	13,381	14,677	4,841	5,397
Rolled and finished steel	*165,408*	*131,636*	*1,373,834*	*1,139,366*	*606,184*	*478,815*
Cast iron pipe and fittings	2,502	2,657	25,805	23,918	8,311	9,109
Car wheels and axles	1,175	2,748	14,004	19,062	5,372	6,941
Iron castings	673	727	8,426	7,130	2,577	3,149
Steel castings	1,151	377	4,946	4,272	3,445	1,998
Forgings	237	212	2,025	1,623	1,016	871
Castings and forgings	*5,737*	*6,721*	*55,206*	*56,005*	*20,721*	*22,068*
All other	365	1,502	10,467	1,502	1,472	707
Total	194,449	155,426	1,615,936	1,359,565	695,659	554,836

Imports of Iron and Steel into the United States
(In Gross Tons)

	April		Ten Months Ended April		Calendar Year Through April	
	1926	1925	1926	1925	1926	1925
Pig iron	54,359	33,299	427,988	268,282	216,729	173,249
Ferromanganese*	9,854	7,228	55,610	57,375	21,560	29,067
Ferrosilicon	1,714	471	4,836	6,936	3,063	2,273
Scrap	3,317	2,870	70,525	73,426	20,918	36,240
Pig iron, ferroalloys and scrap	*69,244*	*43,868*	*558,959*	*406,019*	*262,270*	*240,829*
Steel ingots, blooms, billets and slabs	1,448	4,138	17,849	30,558	8,484	13,522
Iron blooms, slabs, etc	13	....	779	....	42	1
Wire rods	783	732	7,027	4,564	3,444	2,297
Semi-finished steel	*2,244*	*4,870*	*25,655*	(a)*35,122*	*11,970*	(a)*15,820*
Rails and splice bars	10,015	2,671	30,080	36,877	16,418	15,123
Structural shapes	8,553	8,313	59,428	48,418	24,519	23,642
Boiler and other plates	63	....	1,748	777	1,046	98
Sheets and saw plates	769	293	3,538	2,928	1,971	1,441
Steel bars	8,582	4,808	58,747	14,222	28,251	14,230
Bar iron	757	790	6,138	5,453	2,252	3,461
Hoops, bands and cotton ties	1,900	....	10,186	....	5,370	3,037
Tubular products (wrought)	1,976	4,424	28,343	36,609	8,318	2,611
Nails, tacks, staples	361	8	3,145	394	862	179
Tin plate	1,327	34	1,636	293	1,380	72
Bolts, nuts, rivets and washers	69	....	260	109	206	43
Round iron and steel wire	433	229	3,575	2,220	1,439	911
Barbed wire	172	....	5,717	....	1,884	1,416
Flat wire; strip steel	238	224	2,079	1,565	967	690
Steel telegraph and telephone wire	....	....	215	....	82	371
Wire rope and strand	172	482	1,293	5,862	610	576
Other wire	205	....	1,090	....	683	135
Wire cloth and screening	37	....	333	....	113	85
Rolled and finished steel†	*35,629*	*22,276*	*217,561*	*155,727*	*96,371*	*68,121*
Cast iron pipe	5,040	(b)	48,168	(b)	13,207	10,310
Castings and forgings	98	235	2,111	2,058	824	902
Total	112,255	71,249	852,424	598,926	384,642	335,982
Manganese ore*	55,047	14,941	330,840	156,198	147,175	64,435
Iron ore	194,731	166,190	1,869,133	1,856,156	741,357	729,755
Magnesite (dead burned)	8,534	9,715	52,939	51,862	36,286	33,918

*Manganese content only. Shipments of ore from Cuba, which are stated in gross weight, amounted to 90 tons in April, 1926.
†Prior to January, 1926, this includes some cast iron pipe, under the heading "tubular products."
(a) Includes some tonnage of cast iron pipe in earlier months.
(b) Included in tubular products, above.

the interesting fact that Soviet Russia was an important factor in imports of both manganese ore and ferromanganese in April. It is a source of remark especially that Soviet Russia led by far as the point of origin of ferromanganese imports. At least that country is credited with supplying 4619 tons of the total of 9854 tons. Whether or not the product actually was produced in some other country and shipped through a Soviet Russia port is a matter of speculation. Soviet Russia also led as the source of imports of manganese ore, being credited with 23,842 tons out of the total of 55,047 tons, a development which, it is stated, may be due to the operations of manganese mines in that country by American interests. Norway was credited with 2469 tons of ferromanganese in April, Canada with 2428 tons and the United Kingdom, usually the leading country, with only 255 tons. Brazil was credited as being the source of 18,540 tons of manganese imports. Of the 194,731 tons of iron ore imported in April, Chile was the leading country, with 139,800 tons.

Imports of Iron and Steel in Gross Tons

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
Calendar year 1924	556,814	209,109	59,910	255,157
January, 1925	77,105	41,344	7,165	15,498
February	92,353	47,803	10,997	9,666
March	92,115	50,803	5,691	24,330
April	71,233	33,299	7,699	14,941
May	67,789	21,260	8,721	29,139
June	82,853	35,657	4,259	20,720
Fiscal year 1925	749,393	325,199	77,291	186,939
July	64,642	24,881	3,601	28,586
August	68,489	30,707	3,526	34,168
September	68,445	29,917	3,594	22,709
October	80,045	37,709	11,226	23,054
November	79,771	34,712	6,173	33,238
December	98,400	53,333	7,703	36,908
Calendar year 1925	943,240	441,425	80,269	265,688
January, 1926	79,067	48,428	3,055	37,498
February	100,273	59,122	5,194	27,239
March	93,107	54,825	4,606	27,391
April	112,255	54,359	11,568	55,047
Ten months	852,424	427,988	60,446	330,840

*Not included in "total imports." These figures are for manganese contents of the ore.

Exports of Iron and Steel in Gross Tons

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,020
*Average, 1919 to 1923	3,078,724	123,837	149,218
Calendar year 1924	1,805,073	41,478	114,417
January, 1925	141,777	1,298	5,764
February	102,299	1,413	7,516
March	155,384	2,037	7,951
April	155,375	1,632	6,831
May	150,612	2,316	7,360
June	136,847	2,507	7,804
Fiscal year 1925	1,663,084	29,563	107,988
July	139,861	2,348	10,701
August	188,465	5,944	8,024
September	136,791	3,349	8,186
October	141,817	2,874	8,432
November	171,134	4,272	16,783
December	142,209	2,626	12,282
Calendar year 1925	1,762,571	32,674	108,681
January, 1926	174,585	1,663	4,388
February	157,187	1,478	5,615
March	169,438	1,489	6,050
April	194,449	2,010	7,167
Ten months	1,615,936	28,111	87,677

*Calendar years.

United States Imports of Iron and Steel Products by Countries
(In Gross Tons)

	April 1926	First Four Months 1926
Austria	93	326
Belgium	20,575	57,853
Czechoslovakia	22	647
Finland	340	797
France	12,661	41,347
Germany	18,578	67,546
Lithuania	....	1,530
Netherlands	11,591	44,775
Norway	2,505	4,931
Russia	4,619	4,619
Sweden	2,101	8,645
United Kingdom	19,208	72,079
Other Europe	1	75
Europe	*92,294*	*305,170*
Canada	8,746	23,545
Panama	1,114	7,748
Mexico	....	172
Other British West Indies	300	403
Cuba	....	3,597
Other America	1	67
America	*10,161*	*35,532*
India	9,798	43,928
Other Asia	2	12
Total	112,255	384,642

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Vitality of Steel Demand

LAST winter, when shipments of steel by the mills were running at an unusually high rate, producers asserted that, unlike the condition obtaining on some previous occasions, stocks were not accumulating in buyers' hands. Later, there was more general comment to the same effect. Still there were doubters, for time after time in the history of the steel trade the need of buyers to liquidate stocks had become apparent when previously it had been asserted that there were no such stocks.

Time had to furnish the final proof, and it is well now to observe that sufficient time has elapsed to prove the truth of much that has been said. Steel shipments have declined but little, and a long period of heavy production and shipments has now accumulated. Steel demand has shown a vitality or longevity never surpassed except in the period from late 1904 to late 1907. No tonnage comparison can be made, after such a long interval, as we are now making approximately double the quantity.

In the post-war period, there is not merely the point that last year made a new calendar year record. It passed 1923 by only a slight margin. For longevity comparisons we may pick the 17 months from Jan. 1, 1925, to the end of the present month, for there was a big and quick jump from the producing rate of December, 1924. The 17-month period of largest production embracing 1923 ran from November, 1922, to March, 1924, inclusive. It had an ingot-producing rate of 140,000 tons per working day, while the 17-month period now ending shows 147,000 tons, 5 per cent more.

In addition to this gain, there is the fact that when the other 17-month period ended there was a tremendous slump in production, obviously due in large part to liquidation of stocks, for consumption could not have decreased by 55 per cent in four months as did production, from March to the following July. Thus, while the 17-month period now ending shows 5 per cent increase in production, the increase in consumption is more than that.

Another interesting computation may be made: With an average mill operation in the first five months of this year (measured by ingot capacity taken at 180,000 tons per working day), of a trifle under 88 per cent, *it will require an average operation during the remaining seven months of the year of only 73 per cent to make 1926 pass 1925 in tonnage.* Thus there would be two record-breaking years in succession, and that is exceptional.

It is a matter of sustained heavy consumption for 17 months to date, and of consumption having a momentum. It may well be that the wider variety of steel uses nowadays will supply some of the steadiness that was lacking in the past. As an indication of the widely diversified employment of steel is the fact that, whereas four lines—railroad track, freight car building, fabricated structural steel work and automobile manufacture—are very heavy consumers of steel, these four lines together have absorbed probably not more than 40 per cent of the steel produced in the past few months.

Ten Fruitful Years

TEN years is not a long span as history goes. But any decennial celebration falling in 1926 may well have a significance far out of proportion to the lapse of time, seeing that the first two years of the ten had more crowded into them than any other two years before or since.

Last week the National Industrial Conference Board held a meeting in New York marking its tenth anniversary. There were present the heads of 31 industrial organizations, national and State, representing in their membership more than 50,000 manufacturing companies, employing about 7,000,000 men and women. The meeting had little of the self-gratulatory marshaling of achievement that commonly features organization anniversaries. But all that was said was deeply significant of the great work the conference board has wrought in the ten years more prolific of problems for American industry than any like period of its existence.

No organization has shown more of a desire for a fair deal between employee and employer, producer and consumer, business and government, than has been manifest in all that it has put out in the past ten years as the result of its investigations.

Considering the wide acceptance of its reports on wages, cost of living, relations of government and industry, immigration, unemployment, transportation, accident compensation, war debts, agriculture and a score more of post-war issues affecting the public welfare, it is hard to believe that when it started out in 1916 it was heralded by a section of the press as the setting up of a powerful machine to wage war on organized labor. Judged by its fruits, no such intention could have been entertained by any of the founders of the board. Every year of the ten has added to its prestige as an impartial fact-finder and appraiser of fact values, in all the changes, many of them unsettling, that have resulted from the war. Granted the same insight and enlightenment that have directed it thus far, the conference board should come to be recognized as one of the most constructive and stabilizing forces in our industrial economy.

A Triumph for Alloy Steel

IN physical reckoning it was the pulling power of a few dogs that got Peary to the North Pole; the power of 600 horses carried Commander Byrd the same distance. In the one case the time factor was many weeks; in the other, fewer hours.

In each of the three 200-horsepower engines of the Josephine Ford more than half the steel was high-grade alloy material. The crank shaft and some other important parts were either chrome-vanadium or nickel steel containing 3.50 to 5 per cent nickel. To insure the highest quality in these electric steels, perfection both in production processes and heat treatment was necessary. And this super-steel is now making possible the 400-horsepower engine.

It is no exaggeration to say that in the present state of air navigation the polar flight would not have been possible except for the service of these steels under the extraordinary conditions of cold and of vibratory and other strains. Byrd's marvellous performance is thus another tribute to American alloy steel and to heat treatment at its best.

Steel Treaters in Non-Ferrous Work

AN important step was taken by the American Society for Steel Treating, last week, in deciding to take up more actively the problems of non-ferrous metallurgy. Both inside and outside the organization, as indicated in the report of the spring sectional meeting on other pages, there is hearty support for the movement.

The field is a vast one, with openings for the talents of many workers. One research in particular invites a larger participation of the steel treaters. New alloys of aluminum and magnesium give much promise as engineering materials—equal to mild steel in strength but exceptionally light. These are being improved and others are being discovered, but the knowledge and skill of the metallurgist and the steel treater are necessary if these developments are to reach their largest practical results.

Whatever comes of the predictions that the light alloys will replace steel in various uses, it is certain that new alloys and new applications will be discovered. The steel treaters have a large opportunity in the work decided on at Hartford. It is in fact not so much a new departure as an increase of activities previously carried on, many of the principles of heat treatment for steel being equally applicable to non-ferrous metallurgy.

Katanga Copper

WITH the development of large ore bodies in the middle of Africa, a portion of the copper industry assumed that the Dark Continent would quickly advance to a controlling position in copper, such as it has in gold and diamonds. Impressed by what has been written of the approaching exhaustion of important American mines, and the reports of stupendous reserves of ore in Chile as well as in the Congo, some domestic interests started a movement for a protective tariff.

It would be jingo to believe that this country will always dominate the copper market, simply because it has done so for a generation. On the other hand, it is quite as foolish to visualize the shutting down of Western mines simply because Africa now has an output equal to that of a single American smelter. The metal industry is too widespread, has too many ramifications, impinges on the economic structure of the entire civilized world from too many angles, to be subject to violent upheavals except, as in 1914, when the whole world is suddenly deranged.

However, broad movements will occur in the industry. The development of great masses of very rich ore in Africa will unquestionably have an effect on the price—it increases the available supply of metal. In time this will close the small or high-cost mine, working far underground on lean ore; in fact, such a change in iron mining districts followed the development of steam shovel mines on the Mesabi Range.

But other factors are operating in this situation which easily may nullify the expected working of the so-called law of supply and demand.

In the first place, it should be remembered that a body of 30 per cent ore in the center of Africa is much like a glacier in Spitzbergen or a sand quarry at Atlantic City. All are valuable commodities, true enough, but valuable only at certain times and places. Tanganyika copper is several hundred miles from fuel or flux; several thousand miles from a consumer; just as far from a supply of building materials, machinery and technical men; and so far as can be seen at present, always will remain in this great isolation. For this reason we are optimistic enough to believe that copper from the middle of the Congo will always have to pay a high tariff, a tariff erected by nature herself, in the form of extra costs of technical direction, surcharges for machinery, timber, steel, powder, coal—all the things which are needed to change ore into metal; and finally, a freight bill on copper to market which would eat up 20 per cent of the receipts.

Such a situation is conducive to waste in production—waste in negro labor because it is cheap, and waste in metal because adequate machinery for recovery is expensive. Tanganyika may, therefore,

repeat the history of many American mining centers, such as early operations on rich ores, with a gradual turning to the leaner rock, and finally retreating the wastes of former years. It is to be noted that the outstanding fact in the history of copper is the manner in which technical ability has been able to maintain low costs and increase the production in the face of decreasing values in the ore, increasing depth in the mines, and rising costs of labor and supplies.

Space permits only mention of the third major influence on the situation: the increased consumption of copper with an increased supply. In ordinary times any factor which drives down the price is counteracted very shortly by absorption of the metal in new uses. Thus there are three factors which should be given careful consideration before generalizing upon the effect of cheap African copper:

1. The natural tariff against Congo copper.
2. Technical ability in American organizations.
3. Large potential avenues of consumption.

Combined, they do not look so disastrous to the American industry.

The Competition Remedy for Coal

OUT of the mass of discussion on coal following the strike of 1922 the main point was that competition would right the thoroughly unsound and improper condition in the industry, of altogether too much capacity and too many miners.

Now we have plenty of competition in coal and there is no appearance of matters proceeding in the right direction. One can see clearly that at best it will take a long time for the coal industry to get into any sort of balance, and that there will be incalculable suffering and loss.

The past few months have furnished a particularly crucial test, for beyond question there has been as good a demand for coal as the country is likely to supply on an average. In some quarters it has been doubted that production of bituminous coal has been as heavy as recent weekly reports of the Bureau of Mines have indicated, but the fact that the week ended May 15 shows a slight increase tends to dispel doubt as to previously published figures. It should be said that the Bureau of Mines assumes no responsibility for the accuracy of its totals, other than arithmetical, simply accepting the reports sent it.

The great volume of recent bituminous production is shown by the cumulative totals, Jan. 1 to May 15, as follows, representing net tons:

1920.....	194,867,000	1924.....	183,581,000
1921.....	146,282,000	1925.....	179,003,000
1922.....	156,821,000	1926.....	205,770,000
1923.....	208,650,000		

In comparing this year with previous years allowance should be made for the anthracite suspension; but 20,000,000 tons would be an entirely outside estimate for such allowance, and this would leave the bituminous trade with all the demand it could ordinarily expect to have.

Yet there is the circumstance that, while the union bituminous districts which are at all near non-union fields have lost almost all their trade to such non-union fields except nearby business protected by freight rates, the non-union fields are in such strenuous competition that they are making little profit and in many cases there are losses. Even in the Pittsburgh district, for a quarter century one of the greatest strongholds of unionism, there is now being produced, for the market, more coal at wages under the union scale than coal at the union scale; and going prices represent the reduced wage scale rather than the full scale, not involving a profit equal to the wage difference, if indeed any real profit at all.

It seems doubtful if even the working out of economic laws will put the coal industry in shape to make reasonable profits for some of its members, even in a period of several years; at best the process would be accompanied by enormous losses, which it is not fair should be sustained. For this situation the domineering and unreasonable attitude of the labor union is plainly responsible. When the coal industry's capacity needed to be reduced, the insistence of the United Mine Workers upon its high scale caused non-union fields to increase their capacity.

New Officers of Steel Treaters' Chapters

Several of the chapters of the American Society for Steel Treating have recently elected officers for the coming year.

The New York chapter at its monthly meeting, May 19, elected as chairman, Dr. Ancel St. John, consulting metallurgist; vice-chairman, Charles McKnight, research department, International Nickel Co., and secretary-treasurer, T. H. Holden, metallurgist, E. W. Bliss Co., Brooklyn.

The Chicago chapter recently elected as its officers for the coming year the same men who were officers of the chapter at the time of the first convention and exhibition of the organization of the society in Chicago in 1919. They are: Chairman, T. E. Barker, president Accurate Steel Treating Co.; vice-chairman, A. F. Boissoneau, works manager Wm. Ganschow Co., and secretary-treasurer, Arthur G. Henry, metallurgist Danly Machine Specialties, Inc.

The Rochester chapter has selected as its new officers for the coming year: Chairman, D. M. Strauchen, chief machine designer Ritter Dental Co.; vice-chairman, F. T. Flaherty, assistant chemist Northeast Electric Co., and secretary-treasurer, I. C. Matthews, research chemical engineer Eastman Kodak Co.

The chapter at Worcester, Mass., will have as its officers for next year: Chairman, Bert A. Davis, Fremont Casting Co.; vice-chairman, E. D. Clark, Crompton & Knowles Loom Works, and secretary-treasurer, C. G. Johnson, Worcester Polytechnic Institute.

May Blow in Genesee Furnace

It was reported that the McKinney Steel Co. is preparing to blow in the Genesee blast furnace located at Charlotte, near Rochester, N. Y., which has not been operating for nearly two years. H. T. Ballard, of Cleveland, has been sent to the plant to prepare the furnace for blowing in. There are now 65,000 tons of iron ore and 40,000 tons of limestone in the yards of the company, it is reported.

Sixteen gas producers will be built for the Colorado Fuel & Iron Co. by the Wellman-Seaver-Morgan Co., Cleveland.

FOR PHILADELPHIA EXPOSITION

Jones & Laughlin Steel Corporation Gives Statue to Sesquicentennial

A colossal statue symbolizing the spirit and energy of the steel industry with Pittsburgh as its center will form one of the important decorative features of the Sesquicentennial Exposition in Philadelphia. The statue, which will be 60 ft. high, or equal in height to a five-story building, was offered to the exposition by the Jones & Laughlin Steel Corporation and it has been accepted. The sculptor is Frank Vittor, Pittsburgh. The statue will stand in the center of Broad Street at the south end of the exposition's court of honor and will be brilliantly illuminated at night with flood lights and searchlights.

SYMBOLIZING the Spirit and Energy of the steel industry, a great sculptural group of the height of a five-story building, of which the view is a plaster working model, has been presented by the Jones & Laughlin Steel Corporation of Pittsburgh to the Sesquicentennial Exposition in Philadelphia. The group is the work of Frank Vittor, a Pittsburgh sculptor. It will stand at the south end of the Court of Honor and be brilliantly lighted at night.

The group represents the steel industry with three colossal male figures, the center one of which holds aloft an huge structural steel I-beam equipped with wings as indicative of the distribution of steel products from Pittsburgh throughout the world. The other two male figures represent a smith and a furnaceman, the latter tilting a ladle of molten steel into ingot molds. Around the feet of the figures and on the column of the pedestal will be depicted steel works, blast furnaces and other activities of the steel industry, done in bas-relief. On the architectural base will be placed replicas of awards earned at other expositions by the Jones & Laughlin Steel Corporation. An idea of the magnitude of the work may be obtained from the fact that the central figure of the group will be 24 ft. tall.

The idea of having Jones & Laughlin present a statue to the exposition instead of making an exhibit of their products originated with B. F. Jones, Jr., chairman of the board and son of the late Benjamin Franklin Jones, who founded the business three-quarters of a century ago. It is probable that the unveiling will be presided over by B. F. Jones, 3d, grandson of the founder and secretary of the present corporation.

The statue will be modeled of stucco-plaster on a steel frame composed largely of the new Jones & Laughlin structural section, the J & L junior beam, which will provide the necessary strength to support the 20-ton group without adding heavily to the weight.

Second Annual Meeting of American Refractories Institute

The second annual meeting of the American Refractories Institute was held on May 12 at the Bellevue-Stratford Hotel in Philadelphia. The institute consists of individual members and representatives of industrial concerns, both on the manufacturer's and on the consumer's sides. It has effected an arrangement under which research is being carried on at the Mellon Institute in Pittsburgh.

Papers were read as follows:

"Service Conditions in Open-Hearth Furnaces as Affecting the Life of Refractories"—by F. W. Schroeder, assistant chemist, United States Bureau of Mines, Pittsburgh.

"Refractories Industry in New Jersey"—by G. H. Brown, ceramics department, Rutgers University, New Brunswick, N. J.

"Mullite Refractories"—by M. L. Freed, research fellow, United States Bureau of Standards, Washington.

"Industrial Research"—by Dr. E. R. Weidlein, director Mellon Institute of Industrial Research, Pittsburgh.

"Study and Development of Tests for Fire Brick with Special Reference to Spalling"—by S. M. Phelps, fellow, refractories fellowship, Mellon Institute.

Officers Elected

Officers for the coming year were elected as follows:

President, J. M. McKinley, Crescent Refractories Co., Curwensville, Pa.

First vice-president, J. L. Green, Laclede-Christy Clay Products Co., St. Louis.

Second vice-president, Burrows Sloan, General Refractories Co., Philadelphia.

Treasurer, C. C. Edmunds, McLain Fire Brick Co., Pittsburgh.

Secretary, Dorothy A. Texter, 2202 Oliver Building, Pittsburgh.

Massillon Steel Joist Co. of the Pacific Coast

SAN FRANCISCO, May 21.—John L. Clymer, formerly managing-director California Institute of Steel Construction, San Francisco, and Stanley Maycumber, vice-president and general manager Massillon Steel Joist Co., Canton, Ohio, have organized the Massillon Steel Joist Co. of the Pacific Coast, with offices at 415 Rialto Building. Papers of incorporation have been filed, and plans call for the establishment of a manufacturing plant on the Pacific Coast, possibly in 1927. Stanley Maycumber is president of the new company and John L. Clymer is vice-president and general manager.

Mr. Clymer came to San Francisco in 1916 as Pacific Coast manager of the American Red Cross. He was later a member of the faculty of the University of Southern California, Los Angeles, in charge of the extension and development program. During 1924 he was director of the speakers' bureau of the Republican National Committee in San Francisco, and during the past year he has been managing director of the California Institute of Steel Construction. He is a graduate of Amherst College, class of 1904.

Iron and Steel Markets

Steel Corporation Advances Bars $2

May Bookings of Finished Steel Still Exceed Those for April—Importers of German Steel in Confusion Over Countervailing Duty—Automobile Makers Inquiring for Third Quarter

AN advance of $2 a ton in the Steel Corporation's price for steel bars, effective May 26, centers attention on that section of the market following a brief interval in which sales were commonly made at 1.90c., Pittsburgh, instead of 2c., which had ruled for about nine months.

At the 1.90c. price enough business has come in this month to make bars more active than other finished lines. The Steel Corporation now quotes 2c., Pittsburgh, and 2.10c., Chicago, on 100-ton lots, while smaller quantities take 2.10c., Pittsburgh, and 2.20c., Chicago.

The coming fortnight is likely to show to what extent other makers of bars will follow the Steel Corporation's action, and how far the 1.90c. price has brought new business to their books.

Improvement upon the April rate of new bookings in finished steel products is still reported, the Steel Corporation in the past week running some 7000 tons a day ahead of the corresponding period of last month.

Mill operations in the Pittsburgh and Youngstown districts show further slight reductions, with the steel ingot percentage at 70 to 75. The Chicago district holds close to 90 per cent, as for several weeks. With the Steel Corporation at 88 per cent this week, the entire industry is under 80 per cent.

Automobile makers are showing interest in steel for delivery after July 1. One Detroit company turning out 3000 cars a day is inquiring for sheets, cold-rolled strip and other forms for third quarter, and parts manufacturers in Cleveland territory are placing steel for the second half.

Steel pipe holds its place as a leader in volume of new buying, the larger sizes showing well in forward bookings. The Magnolia Pipe Line Co. is inquiring for 180 miles of 8-in. pipe and the Roxana Petroleum Co. order, 200 miles of 8-in., has gone to Youngstown.

Announcement is still awaited of the tin plate price for the second half. The continuance of the present basis is expected. Shipments thus far have been notably large.

At Cleveland the Interlake Steamship Co. has placed two freighters for which 10,000 tons of plates go to the Bethlehem and Youngstown Sheet & Tube companies.

Railroad car builders in the Pittsburgh district are coming to the end of their orders and there is some reduction in working forces. At Chicago the only inquiry is that of the Chicago & Northwestern for 500 stock car bodies. The International Railways of South America bought 200 cars. In locomotives the week's total was 48.

Awards of more than 46,000 tons of fabricated steel make the past week the best of the month and the third largest of the year. Dock improvements at Buffalo will take 3500 tons of sheet steel piling.

Bookings of tanks and other plate work in April, amounting to 32,700 tons, or 48 per cent of capacity, were the largest since June.

Among indices of the large volume of 1926 steel business are the bookings of steel furniture and shelving. Department of Commerce figures show that the first four months ran well ahead of last year. April sales of steel castings were 86,000 tons, the largest since November and exceeding every month of 1925 except January and December.

With little activity, the pig iron market is yielding, concessions being reported in southern Ohio and in districts in which Buffalo and eastern Pennsylvania furnaces come in competition.

Importers of German steel were thrown into confusion by the Treasury order for countervailing duties equal to the bonuses given by the Raw Steel Syndicate. These range from $3.57 to $5.95 on most of the finished forms named in the Treasury circular. Pig iron is included in the order, but it is not certain that the German coal syndicate's bonus on coke used in making export pig iron is now in force.

Germany sent 75,000 tons of pig iron to this country last year, but only 30,000 tons of finished steel, while Belgium is credited with 150,000 tons of the steel imported here in 1925. Since Jan. 1 German steel has been coming in at the rate of 45,000 tons a year.

Fearing loss on existing contracts with American buyers some importers of German steel are asking that exports to this country be exempted from the bonus arrangement of the Raw Steel Syndicate.

British iron and steel markets are paralyzed by the coal strike, wholesale closing down is imminent, the proposed formation of an international raw steel syndicate at Brussels was halted through absence of British representation and Continental mills are slow in quoting on British business.

Another Japanese rail order placed in the United States covers 1200 tons of girder rails for Tokio.

The finished steel composite price at 2.403c. per lb. for the second week compares with 2.460c. one year ago.

Pig iron, on the other hand, though falling this week from $20.29 to $20.04 per ton, is more than 3 per cent above $19.42, THE IRON AGE composite price of a year ago.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At Date, One Week, One Month, and One Year Previous

For Early Delivery

Pig Iron, Per Gross Ton:	May 25, 1926	May 18, 1926	Apr. 27, 1926	May 26, 1925
No. 2X, Philadelphia‡	$22.76	$22.76	$23.26	$21.26
No. 2, Valley furnace†	*18.50*	19.00	19.00	18.50
No. 2, Southern, Cin'ti†	25.69	25.69	25.69	24.05
No. 2, Birmingham†	22.00	22.00	22.00	20.00
No. 2 foundry, Chicago*	21.50	21.50	22.00	20.50
Basic, del'd, eastern Pa.	21.75	21.75	21.75	21.50
Basic, Valley furnace	*18.00*	18.50	18.50	18.25
Valley Bessemer, del'd P'gh	*20.76*	21.26	21.26	21.26
Malleable, Chicago*	21.50	21.50	22.00	20.50
Malleable, Valley	*18.50*	19.00	19.00	19.00
Gray forge, Pittsburgh	*19.76*	20.26	20.26	19.76
L. S. charcoal, Chicago	29.04	29.04	29.04	29.04
Ferromanganese, furnace	88.00	88.00	88.00	115.00
Rails, Billets, etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Light rails at mill	34.00	34.00	32.00	39.20
Bess. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. billets, Pittsburgh	35.00	35.00	35.00	35.00
O.-h. sheet bars, P'gh	36.00	36.00	36.00	35.00
Forging billets, base, P'gh	40.00	40.00	40.00	40.00
O.-h. billets, Phila	40.30	40.30	40.30	40.67
Wire rods, Pittsburgh	45.00	45.00	45.00	46.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	1.90	1.90	1.90	2.00
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.22	2.22	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.05
Steel bars, Pittsburgh	1.90	1.90	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, New York	2.24	2.24	2.34	2.34
Tank plates, Pittsburgh	1.85	1.85	1.90	2.00
Tank plates, Chicago	2.10	2.10	2.10	2.20
Tank plates, New York	2.24	2.24	2.24	2.24
Beams, Pittsburgh	1.90	1.90	1.90	2.00
Beams, Chicago	2.10	2.10	2.10	2.20
Beams, New York	2.24	2.24	2.24	2.34
Steel hoops, Pittsburgh	2.50	2.50	2.50	2.40

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	May 25, 1926	May 18, 1926	Apr. 27, 1926	May 26, 1925
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh	3.15	3.15	3.25	3.20
Sheets, black, No. 28, Chicago dist. mill	3.35	3.35	3.35	3.40
Sheets, galv., No. 28, P'gh	4.40	4.40	4.50	4.35
Sheets, galv., No. 28, Chicago dist. mill	4.60	4.60	4.70	4.50
Sheets, blue, 9 & 10, P'gh	2.40	2.40	2.40	2.40
Sheets, blue, 9 & 10, Chicago dist. mill	2.60	2.60	2.60	2.50
Wire nails, Pittsburgh	2.65	2.65	2.65	2.75
Wire nails, Chicago dist. mill	2.70	2.70	2.70	2.85
Plain wire, Pittsburgh	2.50	2.50	2.50	2.50
Plain wire, Chicago dist. mill	2.55	2.55	2.55	2.60
Barbed wire, galv., P'gh	3.35	3.35	3.35	3.45
Barbed wire, galv., Chicago dist. mill	3.40	3.40	3.40	3.55
Tin plate, 100 lb. box, P'gh	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	$15.00	$15.00	$16.00	$16.25
Carwheels, Philadelphia	17.00	17.00	17.50	17.00
Heavy steel scrap, P'gh	15.50	15.50	16.00	17.00
Heavy steel scrap, Phila	15.00	15.00	15.50	15.00
Heavy steel scrap, Ch'go	12.00	12.00	12.50	15.50
No. 1 cast, Pittsburgh	16.50	16.50	16.50	17.50
No. 1 cast, Philadelphia	17.00	17.00	17.50	17.00
No. 1 cast, Ch'go (net ton)	15.75	15.75	16.00	17.50
No. 1 RR. wrot, Phila	17.00	17.00	17.50	17.50
No. 1 RR. wrot. Ch'go (net)	*10.50*	11.00	12.00	14.00
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	*$2.85*	$2.90	$3.00	$3.00
Foundry coke, prompt	4.00	4.00	4.00	4.00
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.00	14.00	14.12½	13.62½
Electrolytic copper, refinery	*13.57½*	13.62½	13.75	13.37½
Zinc, St. Louis	6.85	6.85	6.95	7.07½
Zinc, New York	7.20	7.20	7.30	7.42½
Lead, St. Louis	*7.40*	7.50	7.60	8.05
Lead, New York	*7.65*	7.75	7.85	8.40
Tin (Straits), New York	*61.00*	62.00	63.75	55.75
Antimony (Asiatic), N. Y.	*9.50*	12.00	17.00	17.00

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Pittsburgh

Valley Pig Iron Declines 50c.—Increasing Demand for Steel Pipe

PITTSBURGH, May 25.—An increasing demand for pipe, notably for oil and gas wells and for pipe lines, and a fairly well sustained demand for structural steel are not sufficient to offset a contraction in the demand for other lines, although by comparison with a year ago the record affords some satisfaction. Makers of pipe have been able to build up fair-sized backlogs and here and there to increase operations, but in most other finished products conditions are just the reverse, with diminishing order books and consequently some slowing up of plant operations.

Sales effort grows stronger as mill engagement recedes, and while only sheets have actually declined since a week ago, the market in general is more favorable to buyers than it has been, this being seen in their ability to secure somewhat smaller tonnages at what recently were regarded as large-lot prices. Manufacturers of those products finding large use by the automobile industry have suffered a substantial falling off in business so far this month. In strips, for example, this month's bookings of Pittsburgh district mills are running from 25 to 33⅓ per cent under those for the same period last month. A materially lighter demand for cold-finished steel bars is due to the same cause, i.e., closer buying by those serving the automobile industry in an effort to avoid large inventories.

Continued light demand from the railroads is being felt and local railroad car builders are beginning to approach the end of their orders and to lay off men.

No announcement yet has been made as to third quarter and last half prices of tin plate, and it is assumed, in the absence of an announcement, that manufacturers are planning to continue the present prices. Another reason for tardiness in naming prices may be found in the fact that shipments of tin plate so far this year have been extremely heavy, and because of the lateness of the growing season, it looks as though comparatively little tin plate would be required for July shipment on which any price announced would apply.

Steel ingot production in this and nearby districts is around 70 per cent of capacity, but with finishing mill operations generally growing smaller, the prospect is that steel works output will decline further.

One merchant furnace has been blown out since a week ago, and a Pittsburgh district steel company stack is likely to be blown out in the next few days. Continued dullness has finally begun to tell on the prices of pig iron at Valley furnaces, and as some of the producers have been shipping west at prices 50c. a ton below recent quotations, the effort to maintain the market here is not succeeding. Scrap prices continue to grow softer, chiefly because there is no interest worthy of note on the part of consumers, and dealers

must find an outlet for the material coming into their hands. Curtailment of coke production does not seem to be helping the price.

Pig Iron.—The market here is weaker. Continued lack of important buying has made producers more anxious for business and, not finding it in the Pittsburgh district, Valley furnaces have sought it in territories where they have had to compete with Lake furnaces. The effort to maintain one price for shipments toward Pittsburgh and another 50c. a ton lower on shipments west of the Valleys, has proven impossible. Producers still are quoting recent prices on such inquiries as develop, but when there is a sale in prospect there is a concession, and accordingly a fair presentation of the market necessitates the recognition of prices that actually can be obtained. Some recent sales of basic and Bessemer iron to a Pittsburgh district sheet maker, the former grade at from $17.75 to $18 and the latter at $18.75 to $19, are not to be reckoned as market setting transactions because of reciprocal factors, but there is no doubt that basic iron can be bought at $18 and Bessemer at $19, although within the week several sales of the latter, aggregating about 1000 tons, were made at $19.50, Valley furnace. Foundry iron has sold at $18.50, Valley furnace, and preservation of the usual differentials also would warrant lower prices than recently prevailed on the steel-making grades. The furnace of the Clinton Iron & Steel Co. stopped making iron May 20, and the Pittsburgh Steel Co. will put off a furnace in the next few days.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$18.00
Bessemer	$19.00 to 19.50
Gray forge	18.00 to 18.50
No. 2 foundry	18.50 to 19.00
No. 3 foundry	18.00 to 18.50
Malleable	18.50 to 19.00
Low phosphorus, copper free	27.50

Ferroalloys.—There is little of interest except that contracts for third quarter and last-half tonnages of spiegeleisen are being written at the same prices as those for the first half of this year. There is no new business in ferromanganese or 50 per cent ferrosilicon worthy of note, but specifications against contracts are being made steadily. Prices are given on page 1531.

Semi-Finished Steel.—Prices appear to be holding despite a very light demand. Most consumers have regular supply sources and in many cases are drawing on them without the formality of making contracts. Tin mills are still operating at a high rate, but the sheet industry is down to a 60 per cent of capacity operation, and there has been a curtailment of strip mill operations because of a let-up in demand that has reduced bookings of some companies by as much as 33 1/3 per cent, compared with April. These conditions tell on the demand for billets, slabs and sheet bars. There is so little demand for rods that the price is largely untested; makers are quoting $45, base, Pittsburgh or Cleveland, but there is beginning to be doubt that this price could be obtained on a worth-while tonnage.

Wire Products.—Business at best is only moderately active, and even with an operation of nail and wire machinery at about 50 per cent of capacity, buyers are having no trouble in getting all they want and as promptly as they wish it. It has been a disappointing spring in the movement into consumption of fence and fence wire. Nails are feeling the use of paper in place of wood for containers, and steel bands have cut down the use of nails in concrete forms. Prices are steady. They are given on page 1529.

Rails and Track Supplies.—Little business in standard rails is coming out in this district, and the local producing unit has reduced its backlog to the vanishing point. Light rails are moving sluggishly, but there is good observance by local makers of the recently restored price of $34 per gross ton for billet rails. Spikes and other accessories are moving rather slowly, since railroads ordered out rather freely when they were getting rail deliveries. Prices are given on page 1529.

Tubular Goods.—Pipe continues to be the bright spot among finished products. The Youngstown Sheet & Tube Co. has taken the 200-mile line of 8-in. pipe to be laid in Illinois by the Roxana Petroleum Corporation, and there are reports that a gas line to be built from Amarillo, Tex., to Denver, Colo., by the Doherty interests has been placed. This will take approximately 450 miles, mostly of 16-in. pipe. Besides a good deal of oil and gas line pipe, oil country goods are moving well and in standard pipe there is an insistent, if short range, demand. At least 80 per cent of the country's steel pipe capacity is engaged. There is nothing to add to recent reports about boiler tubes; business in seamless tubes is fair, but in welded tubes is so slow that at least two local makers have gone in for pipe, one having recently started a lap-welding unit, while the other is building a butt-weld furnace. Discounts are given on page 1529.

The Magnolia Pipe Line Co. has put out an inquiry for 180 miles of 8-in. pipe, and the Lone Star Gas Co. is figuring on a new line of considerable length to parallel the Missouri-Kansas-Texas Railroad.

Sheets.—Business with the largest individual producer of sheets was better last week than in any of the seven preceding weeks. This company for the year to date has shipped 40,000 tons more than in the same period last year; the record of the industry as a whole is equally good, but backlogs are very much reduced and the need for new business is so pressing with many makers that prices continue to weaken. Black sheets, in particular, are being pressed on the market and reports of sales at as low as 3c., base Pittsburgh, are heard, although some of the larger producers are making a stand at from $2 to $3 a ton higher, and the American Sheet & Tin Plate Co. is quoting 3.25c. On body sheets 4.30c. now appears to be a maximum rather

THE IRON AGE Composite Prices

Finished Steel

May 25, 1926, 2.403c. Per Lb.

One week ago	2.403c.
One month ago	2.439c.
One year ago	2.460c.
10-year pre-war average	1.689c.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.

	High		Low	
1926	2.453c.,	Jan. 5;	2.403c.,	May 18
1925	2.560c.,	Jan. 6;	2.396c.,	Aug. 18
1924	2.789c.,	Jan. 15;	2.460c.,	Oct. 14
1923	2.824c.,	April 24;	2.446c.,	Jan. 2

Pig Iron

May 25, 1926, $20.04 Per Gross Ton

One week ago	$20.29
One month ago	20.46
One year ago	19.42
10-year pre-war average	15.72

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.

	High		Low	
1926	$21.54,	Jan. 5;	$20.04,	May 25
1925	22.50,	Jan. 13;	18.96,	July 7
1924	22.88,	Feb. 26;	19.21,	Nov. 3
1923	30.86,	March 20;	20.77,	Nov. 20

Mill Prices of Finished Iron and Steel Products

Iron and Steel Bars

Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mills	1.90c. to 2.00c.
F.o.b. Chicago	2.10c.
Del'd Philadelphia	2.22c. to 2.32c.
Del'd New York	2.24c. to 2.34c.
Del'd Cleveland	2.19c.
F.o.b. Birmingham	2.15c. to 2.25c.
C.i.f. Pacific ports	2.35c.
F.o.b. San Francisco mills	2.35c. to 2.40c.

Billet Steel Reinforcing

F.o.b. Pittsburgh mills	1.90c. to 2.00c.

Rail Steel

F.o.b. mill	1.80c. to 1.90c.
F.o.b. Chicago	1.90c. to 2.00c.

Iron

Common iron, f.o.b. Chicago	2.00c.
Refined iron, f.o.b. P'gh mills	3.00c.
Common iron, del'd Philadelphia	2.22c.
Common iron, del'd New York	2.24c.

Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mill	1.85c. to 1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c.
Del'd Philadelphia	2.17c. to 2.22c.
Del'd New York	2.19c. to 2.24c.
C.i.f. Pacific ports	2.25c. to 2.30c

Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mill	1.90c.
F.o.b. Chicago	2.10c.
F.o.b. Birmingham	2.05c. to 2.15c.
Del'd Cleveland	2.09c. to 2.19c.
Del'd Philadelphia	2.12c. to 2.22c.
Del'd New York	2.14c. to 2.24c.
C.i.f. Pacific ports	2.30c. to 2.35c.

Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
All gages, narrower than 6 in., P'gh	2.50c.
All gages, 6 in. and wider, P'gh	2.30c.
All gages, 6 in. and narrower, Chicago	2.60c.
All gages, wider than 6 in., Chicago	2.50c.

Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills	2.50c.
Bars, f.o.b. Chicago	2.50c.
Bars, Cleveland	2.55c.
Shafting, ground, f.o.b. mill	*2.70c. to 3.00c.
Strips, f.o.b. Pittsburgh mills	3.75c.
Strips, f.o.b. Cleveland mills	3.75c.
Strips, delivered Chicago	4.05c.
Strips, f.o.b. Worcester mills	4.05c.

*According to size.

Wire Products

(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails	$2.65
Galv'd nails, 1-in. and longer	4.65
Galv'd nails, shorter than 1 in	4.90
Galvanized staples	3.35
Polished staples	3.10
Cement coated nails	2.65

	Base Per 100 Lb.
Bright plain wire, No. 9 gage	$2.50
Annealed fence wire	2.65
Spring wire	3.50
Galv'd wire, No. 9	3.10
Barbed wire, galv'd	3.35
Barbed wire, painted	3.10

Chicago district mill and delivered Chicago prices are $1 per ton above the foregoing. Birmingham mill prices $3 a ton higher; Worcester, Mass., mill $3 a ton higher on production of that plant; Duluth, Minn., mill $2 a ton higher; Anderson, Ind., $1 higher.

Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh	$65.00
F.o.b. Cleveland	65.00
F.o.b. Anderson, Ind	66.00
F.o.b. Chicago district mills	67.00
F.o.b. Duluth	68.00
F.o.b. Birmingham	68.00

Sheets

Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. Pittsburgh	2.35c. to 2.40c.
Nos. 9 and 10, f.o.b. Ch'go dist. mills	2.60c.
Nos. 9 and 10, del'd Philadelphia	2.72c.

Box Annealed, One Pass Cold Rolled

No. 28, f.o.b. Pittsburgh	3.05c. to 3.25c.
No. 28, f.o.b. Ch'go dist. mill	3.35c. to 3.45c.
No. 28, del'd Philadelphia	3.47c. to 3.57c.

Galvanized

No. 28, f.o.b. Pittsburgh	4.35c. to 4.50c.
No. 28, f.o.b. Chicago dist. mills	4.60c. to 4.70c.
No. 28, del'd Philadelphia	4.72c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh	3.15c. to 3.25c.
No. 28, f.o.b. Chicago dist. mill	3.45c.

Automobile Body Sheets

No. 22, f.o.b. Pittsburgh	4.20c. to 4.30c.

Long Ternes

No. 28, 8-lb. coating, f.o.b. mill	4.85c.

Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills	$5.50
Standard cokes, f.o.b. Gary and Elwood, Ind.	5.60

Terne Plate

(*F.o.b. Morgantown or Pittsburgh*)

(Per package, 20 x 28 in.)

8-lb. coating, 100 lb. base	$11.40
8-lb. coating I.C.	11.70
15-lb. coating I.C	14.85
20-lb. coating I.C.	$16.20
25-lb. coating I.C.	17.90
30-lb. coating I.C.	19.45
40-lb. coating I.C.	21.65

Alloy Steel Bars

(F.o.b. Pittsburgh or Chicago)

S. A. E. Series Numbers		Base Per 100 Lb.
2100*	(1½% Nickel, 0.10% to 0.20% Carbon)	$3.20 to $3.25
2300	(3½% Nickel)	4.50
2500	(5% Nickel)	5.70 to 5.80
3100	(Nickel Chromium)	3.50
3200	(Nickel Chromium)	5.00 to 5.25
3300	(Nickel Chromium)	7.00 to 7.25
3400	(Nickel Chromium)	6.25 to 6.50
5100	(Chromium Steel)	3.40 to 3.50
5200*	(Chromium Steel)	7.00 to 7.50
6100	(Chrom. Vanadium bars)	4.30
6100	(Chrom. Vanad. spring steel)	3.80
9250	(Silicon Manganese spring steel)	3.20 to 3.25
Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.)		4.10 to 4.20
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.)		4.30
Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.)		4.25 to 4.35
Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.)		3.40 to 3.50
Chromium Molybdenum spring steel (1 — 1.25 Chrom., 0.30 — 0.50 Molybdenum)		4.50 to 4.75

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.

Rails

	Per Gross Ton
Standard, f.o.b. mill	$43.00
Light (from billets), f.o.b. mill	34.00
Light (from rail steel), f.o.b. mill	32.00
Light (from billets), f.o.b. Ch'go mill	$36.00 to 38.00

Track Equipment

(F.o.b. Mill)

	Base Per 100 Lb.
Spikes, ⅜ in. and larger	$2.80 to $3.00
Spikes, ½ in. and smaller	2.85 to 3.25
Spikes, boat and barge	3.25
Track bolts, all sizes	4.00 to 4.50
Tie plates, steel	2.25 to 2.35
Angle bars	2.75

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜	+11	+39
¼ to ⅜	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½	30	12
1 to 3	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6	59	47½	2½	26	11
7 and 8	56	43½	3 to 6	28	13
9 and 10	54	41½	7 to 12	26	11
11 and 12	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	¼ to ⅜	+19	+54
¼ to ⅜	47	30½	½	21	7
½	53	42½	¾	28	12
¾	58	47½	1 to 1½	30	14
1 to 1½	60	49½			
2 to 3	61	50½			

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4	57	46½	2½ to 4	29	15
4½ to 6	56	45½	4½ to 6	28	14
7 to 8	52	39½	7 to 8	21	7
9 and 10	45	32½	9 to 12	16	2
11 and 12	44	31½			

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2¼ in	27	1½ in.	+18
2½ to 2¾ in	37	1¾ to 1⅞ in.	+ 8
3 in.	40	2 to 2¼ in.	— 2
3¼ to 3¾ in	42½	2½ to 3 in.	— 7
4 to 13 in	46	3¼ to 4½ in.	— 9

Beyond the above discounts, 5 to 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes

Cold Drawn

1 in.	60	3 in.	45
1¼ to 1½ in.	52	3¼ to 3½ in.	47
1⅝ in.	36	4 in.	50
2 to 2¼ in.	31	4½, 5 and 6 in.	45
2½ to 2¾ in.	39		

Hot Rolled

2 and 2¼ in.	34	3¼ and 3½ in.	50
2½ and 2¾ in.	42	4 in.	53
3 in.	48	4½, 5 and 6 in.	48

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base	55
Carbon, 0.30% to 0.40%, base	50

Plus differentials for lengths over 18 ft. and for commercially exact lengths. Warehouse discounts on small lots are less than the above.

than the ruling price, and as low as 2.30c. and 4.35c. are reported on blue annealed and galvanized sheets. The one saving feature of the situation is that production is being reduced to the level of consumption, and the general average of sheet mill operations now is not more than 60 per cent of capacity.

Tin Plate.—Most makers are operating at a high rate, with enough specified business to carry them through June, while a few have sufficient to carry them into July. Generally, however, there has not been much July tonnage for packers' cans, because of the doubt that still exists as to the outcome of the packing crops. Moreover, shipments of tin plate have been exceptionally heavy so far this year and a record probably has been made; this means generous stocks of tin plate and of cans in the hands of can makers and packers. Announcement yet is to be made of the tin plate price for third quarter and last half; in view of the fact that there has been no formal announcement, the common expectation is that the present price of $5.50 per base box, Pittsburgh, will be continued.

Cold-Finished Steel Bars and Shafting.—Demand continues to taper off and for the first time this year it is apparent that trading is really quiet. The answer is to be found largely in the lighter demand from the automobile parts makers, who constitute a very important outlet for these bars. The market is holding steady at 2.50c., base Pittsburgh, for ordinary tonnages.

Steel and Iron Bars.—On small tonnages of steel bars, mills here still insist that the price is 2c., base, Pittsburgh, and that 1.90c. is the large-lot price. The important change in the situation is that because of lighter demands there has been a revision of ideas of what constitutes a large lot, and it does not take so large a tonnage as recently to bring out the lower price. Iron bars are steady, although the demand is rather slow.

Structural Steel.—Demand for large structural shapes is holding rather well but the mills are not so heavily booked that they can take a stronger stand on prices. The ruling price, as for some time, is 1.90c., base Pittsburgh.

Plates.—If there is firmness in the market, it is due chiefly to the fact that current prices are too close to actual costs, rather than to size of the demand. Many plates are going into pipe, and there is considerable tonnage in barges and other plate fabrication, but the lack of railroad car buying still is felt. Prices are given on page 1529.

Hot-Rolled Flats.—Business is much lighter than it was last month and during the early part of the year, but smaller demands are being met by smaller production, and there are no reports of deviation from recent prices. They are given on page 1529.

Cold-Rolled Strips.—Generally there is good observance of 3.75c., base Pittsburgh or Cleveland, on cold-rolled strips although the demand, notably from the automobile builders, is smaller than it has been. So far, the weakness in full-finished automobile body sheets has not affected prices of cold-rolled strip fender stock, although usually the two products move together.

Bolts, Nuts and Rivets.—The slowing up in demand which set in with the opening of the month continues, but makers have not become so badly in need of business as to shade prices. Discounts and prices are given on page 1531.

Coke and Coal.—The Connellsville district still is curtailing coke production, but not rapidly enough to keep pace with the decrease in the demand, and prices still are favorable to buyers. On very high grade furnace coke as high as $3 still is obtainable for spot shipment, but generally producers with surplus supplies over contract requirements or those without regular consuming connections have found that $2.85 to $2.90 per net ton at ovens is all that could be had. Spot foundry coke remains at $4 to $4.50. Not much improvement is observed in the demand for coal, but prices are no lower.

Old Material.—The trend of the market still is downward, but with so little demand either from consumers or dealers as to make prices indeterminate. On heavy melting steel $15.50 now appears to be the quotable market, although some dealers are said to have bought at $15 for delivery to a consumer that is not exacting as to requirements, or rather will take in at a price scrap which might be rejected if shipped elsewhere. On the other hand, there are dealers who find they cannot pick up this grade at less than $15.50, and that price seems to be as low as any that has been sold to consumers. Railroads continue to offer heavy lists.

We quote for delivery to consumer's mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

	Per Gross Ton	
Heavy melting steel		$15.50
No. 1 cast, cupola size	16.50 to	17.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	18.00 to	18.50
Compressed sheet steel		14.50
Bundled sheets, sides and ends		13.50
Railroad knuckles and couplers	17.50 to	18.00
Railroad coil and leaf springs	17.50 to	18.00
Low phosphorus blooms and billet ends	20.00 to	20.50
Low phosphorus plates and other material	18.50 to	19.00
Low phosphorus punchings	18.50 to	19.00
Steel car axles	21.00 to	21.50
Cast iron wheels	17.50 to	18.00
Rolled steel wheels	17.50 to	18.00
Machine shop turnings		11.00
Short shoveling turnings		11.50
Sheet bar crops	17.50 to	18.00
Heavy steel axle turnings	15.00 to	15.50
Short mixed borings and turnings		11.50
Heavy breakable cast	15.00 to	15.50
Cast iron borings		11.50
No. 1 railroad wrought	11.50 to	12.00
No. 2 railroad wrought		15.50
Malleable scrap	16.50 to	17.00

Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Tank plates	3.00c.
Structural shapes	3.00c.
Soft steel bars and small shapes	2.90c.
Reinforced steel bars	2.90c.
Black sheets (No. 28 gage), 25 or more bundles	4.10c.
Galvanized sheets (No. 28 gage), 25 or more bundles	5.15c.
Blue annealed sheets (No. 10 gage), 25 or more sheets	3.55c.
Cold-finished shafting and screw stock—	
Rounds and hexagons	3.60c.
Squares and flats	4.10c.
Bands	3.60c.
Spikes, large	3.30c.
Small	3.80c. to 5.25c.
Boat	3.80c.
Bolts, track	4.90c.
Wire, black soft annealed, base per 100 lb.	$3.00
Wire, galvanized soft, base per 100 lb.	3.00
Common wire nails, per keg	3.00
Cement coated nails	3.05

RAILROAD EQUIPMENT

With Purchases of 48 Locomotives, Past Week Was Best of Month—Car Buying Light and No Inquiries

The past week was the best this month for locomotive sales with a total of 48 purchased by four different railroads. The Union Pacific closed on 14 and the Northern Pacific and Missouri Pacific each placed 12. Car purchasing was light with only 200 reported for the International Railways of South America. No inquiries for either cars or locomotives are noted. Details follow:

The Denver & Rio Grande Western has placed 10 Mountain type locomotives with the Baldwin Locomotive Works.

The Missouri Pacific has ordered 12 4-8-4 type locomotives from the American Locomotive Co.

The Union Pacific has ordered 14 4-12-2 type locomotives from the American Locomotive Co.

The Southern Pacific has ordered a snow plow from the American Locomotive Co.

The Boston & Maine has placed 6 air dump cars with the Clark Car Co.

The Northern Pacific has ordered 12 locomotives of the 4-8-4 type from the American Locomotive Co.

The Chicago & North Western is in the market for 500 stock car bodies.

The International Railways of Central America have placed an order for 200 box cars with the Gregg Car Co., Hackensack, N. J.

The Consolidation Coal Co. has ordered 100 mine car bodies from the Lorain Steel Co.

Semi-Finished Steel, Raw Materials, Bolts and Rivets

Mill Prices of Semi-Finished Steel

F.o.b. Pittsburgh or Youngstown

Billets and Blooms

	Per Gross Ton
Rolling, 4-in. and over	$35.00
Rolling, 2-in. and smaller	36.00
Forging, ordinary	40.00
Forging, guaranteed	45.00

Sheet Bars

	Per Gross Ton
Open-hearth or Bessemer	$36.00

Slabs

	Per Gross Ton
8 in. x 2 in. and larger	$35.00
6 in. x 2 in. and smaller	36.00

Skelp

	Per Lb.
Grooved	1.90c.
Sheared	1.90c.
Universal	1.90c.

Wire Rods

	Per Gross Ton
*Common soft, base	$45.00
Screw stock	$5.00 per ton over base
Carbon 0.20% to 0.40%	3.00 per ton over base
Carbon 0.41% to 0.55%	5.00 per ton over base
Carbon 0.56% to 0.75%	7.50 per ton over base
Carbon over 0.75%	10.00 per ton over base
Acid	15.00 per ton over base

*Chicago mill base is $46. Cleveland mill base, $45.

Prices of Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

	Per Gross Ton
Old range Bessemer, 51.50% iron	$4.55
Old range non-Bessemer, 51.50% iron	4.40
Mesabi Bessemer, 51.50% iron	4.40
Mesabi non-Bessemer, 51.50% iron	4.25
High phosphorus, 51.50% iron	4.15

Foreign Ore, c.i.f. Philadelphia or Baltimore

	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algerian	9.50c. to 10c.
Iron ore, Swedish, average 66% iron	9.50c.
Manganese ore, washed, 51% manganese, from the Caucasus	42c.
Manganese ore, Brazilian or Indian, nominal	42c. to 44c.
Tungsten ore, high grade, per unit, in 60% concentrates	$11.50 to $12.00
	Per Ton
Chrome ore, Indian basic, 48% Cr_2O_3, crude, c.i.f. Atlantic seaboard	$22.00 to $23.00
	Per Lb.
Molybdenum ore, 85% concentrates of MoS_2, delivered	55c. to 60c.

Coke

	Per Net Ton
Furnace, f.o.b. Connellsville prompt	$2.85 to $3.00
Foundry, f.o.b. Connellsville prompt	$4.00 to 4.50
Foundry, by-product, Ch'go ovens	9.75
Foundry, by-product, New England, del'd	12.50
Foundry, by-product, Newark or Jersey City, delivered	9.75 to 10.77
Foundry, Birmingham	5.00 to 5.50
Foundry, by-product, St. Louis or Granite City	10.00

Coal

	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines	$1.40 to $1.90
Mine run coking coal, f.o.b. W. Pa. mines	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines	1.90 to 2.10
Steam slack, f.o.b. W. Pa. mines	1.30 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.50

Ferromanganese

	Per Gross Ton
Domestic, 80%, furnace or seab'd.	$88.00 to $95.00
Foreign, 80%, Atlantic or Gulf port, duty paid	88.00

Spiegeleisen

	Per Gross Ton Furnace
Domestic, 19 to 21%	$32.00 to $34.00
Domestic, 16 to 19%	31.00 to 33.00

Electric Ferrosilicon

	Per Gross Ton Delivered
50%	$85.00
75%	145.00

Per Gross Ton Furnace		*Per Gross Ton Furnace*	
10%	$42.00	12%	$42.00
11%	42.00	14 to 16%	$45 to 46.00

Bessemer Ferrosilicon

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*	
10%	$33.00	12%	$37.00
11%	35.00		

Silvery Iron

F.o.b. Jackson County, Ohio, Furnace

Per Gross Ton		*Per Gross Ton*	
6%	$25.50	10%	$31.00
7%	26.50	11%	33.00
8%	27.50	12%	35.00
9%	29.00		

Other Ferroalloys

Ferrotungsten, per lb. contained metal, del'd	$1.20
Ferrochromium, 4% carbon and up, 60 to 70% Cr., per lb. contained Cr. delivered	11.50c.
Ferrovanadium, per lb. contained vanadium, f.o.b. furnace	$3.25 to $4.00
Ferrocarbontitanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads	$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton	$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton	$122.50

Fluxes and Refractories

Fluorspar

	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines	$17.50 to $18.00
No. 2 lump, Illinois and Kentucky mines	$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid,	$17.25 to $17.75
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines	$32.50

Fire Clay

	Per 1000 f.o.b. Works	
	High Duty	Moderate Duty
Pennsylvania	$40.00 to $43.00	$38.00 to $40.00
Maryland	48.00 to 50.00	43.00 to 45.00
New Jersey	55.00 to 75.00	
Ohio	40.00 to 43.00	38.00 to 40.00
Kentucky	40.00 to 43.00	38.00 to 40.00
Illinois	40.00 to 43.00	35.00 to 38.00
Missouri	40.00 to 43.00	35.00 to 38.00
Ground fire clay, per ton	6.50 to	7.50

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$40.00
Chicago	43.00
Birmingham	50.00
Silica clay, per ton	$8.00 to 9.00

Magnesite Brick

	Per Net Ton
Standard size, f.o.b. Baltimore and Chester, Pa.	$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.	40.00

Chrome Brick

	Per Net Ton
Standard size	$45.00 to $48.00

Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts

(Less-than-Carload Lots)

(F.o.b. Pittsburgh, Cleveland, Birmingham and Chicago)

	Per Cent Off List
Machine bolts, small, rolled threads	60 and 10
Machine bolts, all sizes, cut threads	50, 10 and 10
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10
Carriage bolts, cut threads, all sizes	50 and 10
Eagle carriage bolts	65 and 10
Lag bolts	60, 10 and 10
Plow bolts, Nos. 3 and 7 heads	50 and 10
(Extra of 20% for other style heads)	
Machine bolts, c.p.c. and t. nuts, ⅜ x 4 in.,	45, 10 and 5
Larger and longer sizes	45, 10 and 5
Bolt ends with hot-pressed nuts	50, 10 and 10
Bolt ends with cold-pressed nuts	45, 10 and 5
Hot-pressed nuts, blank and tapped, square,	4.00c. per lb. off list
Hot-pressed nuts, blank or tapped, hexagons,	4.40c. per lb. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. per lb. off list
Washers*	6.50c. to 6.25c. per lb. off list

*F.o.b. Chicago and Pittsburgh.

The discount on machine, carriage and lag bolts is 5 per cent more than above for car lots. On hot-pressed and cold-punched nuts the discount is 25c. more per 100 lb. than quoted above for car lots.

Bolts and Nuts

(Quoted with actual freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Semi-finished hexagon nuts:	
⅞ in. and smaller, U. S. S.	80, 10 and 5
1 in. and larger, U. S. S.	75, 10, and 5
Small sizes, S. A. E.	80, 10, 10 and 5
S. A. E., ⅝ in. and larger	75, 10, 10 and 5
Stove bolts in packages	80, 10 and 5
Stove bolts in bulk	80, 10, 5 and 2½
Tire bolts	60 and 5

Semi-Finished Castellated and Slotted Nuts

(Actual freight allowed up to but not exceeding 50c. per 100 lb.)

(To jobbers and consumers in large quantities)

	Per 100 Net S.A.E.	Per 100 Net U.S.S.		Per 100 Net S.A.E.	Per 100 Net U.S.S.
¼-in.	$0.44	$0.44	⅝-in.	$2.35	$2.40
5/16-in.	0.515	0.515	⅞-in.	3.60	3.60
⅜-in.	0.62	0.66	1-in.	5.65	5.80
7/16-in.	0.79	0.90	1⅛-in.	8.90	8.90
½-in.	1.01	1.05	1¼-in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜-in.	18.35	18.35
⅝-in.	1.70	1.73	1½-in.	21.00	21.00

Larger sizes.—Prices on application.

Large Rivets

	Base Per 100 Lb.
F.o.b. Pittsburgh	$2.50 to $2.60
F.o.b. Cleveland	2.70
F.o.b. Chicago	2.75

Small Rivets

	Per Cent Off List
F.o.b. Pittsburgh	70 and 10
F.o.b. Cleveland	70 and 10
F.o.b. Chicago	70 and 10

Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb.)

	Per Cent Off List
Milled cap screws	80 and 10
Milled standard set screws, case hardened,	50 and 5
Milled headless set screws, cut thread	80
Upset hex. head cap screws, U. S. S. thread,	80, 10 and 10
Upset hex. cap screws, S.A.E. thread,	80, 10 and 10
Upset set screws	80, 10 and 5
Milled studs	70 and 5

Chicago

Heavy Bookings in Plates and Bars—Production Sustained

CHICAGO, May 25.—Plates and soft steel bars continue to hold the spotlight in the finished steel market. Local makers of plates have booked over 18,000 tons during the week, and current specifications for bars are running fully 50 per cent heavier than the average for April. Taking all products into consideration, sales are the heaviest since the first week in April. Specifications are also well maintained, and inquiry is more active than for any week with the exception of one since March 27.

The rate of ingot production in this district has not changed for several weeks and averages close to 90 per cent of capacity. The Steel Corporation continues to operate 21 furnaces, and the Inland Steel Co. will put its No. 3 stack back in blast within the next few days.

On the whole, specifications are equal to shipments, but new buying is still slightly below the current rate at which mills are making deliveries. The railroad equipment market is slow, and the only inquiry of note in the West is one from the Chicago & North Western for 500 stock car bodies.

Pig Iron.—There is virtually no change in the Northern iron market, except that occasionally a user will inquire for and place some iron for the third-quarter delivery. Shipments for May approximate those of April and the bulk of new buying is at extreme close range. Chicago district merchant stacks in blast are two at Mayville, two Federal, two Iroquois and one Zenith. Operators of the Mayville stacks report that one furnace cannot remain in blast much later than August, even though business warrants, as it must be relined. Southern iron in the immediate Chicago district is very quiet, and the only transaction noted is a resale of 200 tons in southern Illinois at $21.50, base Birmingham. Current sales of charcoal iron are light and are being made at $26, furnace, or $29.04, delivered. Silvery is showing greater activity and the Studebaker Corporation is reported to have purchased 1000 tons of the 8 per cent grade through its Detroit office, to be handled through Cincinnati. Several sales of the 7 to 10 per cent grades have been made for prompt shipment into western Michigan and Indiana. A user in the Chicago district has taken 100 tons of the 6 per cent grade for shipment during July.

Quotations on Northern foundry, high phosphorus and malleable iron are f.o.b. local furnace, and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards.

Northern No. 2 foundry, sil. 1.75 to 2.25	$21.50
Northern No. 1 foundry, sil. 2.25 to 2.75	22.00
Malleable, not over 2.25 sil.	21.50
High phosphorus	21.50
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (all rail)	$27.01 to 28.01
Southern No. 2 (barge and rail)	26.18 to 27.18
Low phos., sil. 1 to 2 per cent, copper free	30.70 to 31.20
Silvery, sil. 8 per cent	32.29
Ferrosilicon, 14 to 16 per cent	45.79

Ferroalloys.—Specifications for ferromanganese are in good volume and new buying amounts to only several carloads at $88, seaboard, or $95.56, delivered. The demand for spiegeleisen is light and carlot sales only are reported. Specifications for 50 per cent ferrosilicon are in good volume.

We quote 80 per cent ferromanganese, $95.56, delivered Chicago; 50 per cent ferrosilicon, $85, delivered; spiegeleisen, 18 to 22 per cent, $39.76 to $40.76, delivered Chicago.

Plates.—This market is active and is bringing a substantial tonnage to local mills. Plate bookings for the week will total 18,000 tons, and there still remains a sizable tonnage of tank material to be placed. The 23,000 tons of tank steel recently inquired for by the Union Oil Co. is reported to have been placed, 1500 tons having been awarded to a Chicago fabricator. A gas holder for Detroit calls for 4500 tons, and one for Peoria, Ill., will require 500 tons. The railroad equipment market in the West is quiet, and no inquiries of note have come before the trade. New buying of plates is well maintained, and specifications are approximately equal to shipments. The Chicago mill quotation of 2.10c. is showing more strength than for the past four or five weeks.

The mill quotation on plates is 2.10c. per lb., base, Chicago.

Sheets.—Demand for sheets is very light except in the case of the blue annealed product, on which the price is holding steady at 2.65c., delivered Chicago. Although black and galvanized sheets are still quotable with a spread of 10c., the bulk of the tonnage coming to mills is at the lower figures.

Chicago delivered prices from mill are 3.40c. to 3.50c. for No. 28 black; 2.65c. for No. 10 blue annealed; 4.65c. to 4.75c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Structural Material.—Labor disputes have resulted in little delay to construction programs in this district. In fact, all differences now appear to have been patched up, and fabricators are looking forward to the appearance of a number of large-tonnage projects. The builders and contractors in Chicago have definitely decided to erect a modern office building, and the contract for the structural steel was let this week to the American Bridge Co. Bids appear to have been taken on a per pound basis, since the architects have not as yet completed the plans. The steel required is variously estimated at between 6000 and 8000 tons. Another local project of note is an office building, requiring 6700 tons, to be located at Quincy, Adams and Clark Streets. New bridge business from the railroads in this district will total to 4500 tons. Fabricators in this territory are busy, and although competition remains keen, the price level is slightly more favorable than during the early spring. Structural shops are still disposed to carry low stocks and are depending upon mills for the bulk of their current requirements. The demand for plain material is slowly gaining momentum, and mill deliveries are gradually being pushed further into the future. The Chicago mill price of plain material is showing greater strength than at any time in the past six weeks.

The mill quotation on plain material is 2.10c. per lb. base, Chicago.

Bars.—Soft steel bar specifications for May are running about 50 per cent ahead of the average maintained throughout April, and sales for the week total higher than for any seven-day period since the first week in April. Demand is widespread, coming from practically all classes of users. The reinforcing bar trade is specifying heavily, and makers of cold-drawn steel are also pressing the mills for steel. Inquiry shows a marked increase, being the most active since the week ending March 27. Demand for alloy steel bars is spotty, but is running about even with that of the previous week. Reports vary as to the extent of operations in the automobile industry, but judging by the demand for alloy steel bars from manufacturers who are tributary to this district, there has been practically no change in the rate of production within the last few weeks. Prices for alloy steel bars are steady. The railroads are about the only buyers who are active in the iron bar market. New buying is at a very low level, and specifications for the week are barely sufficient to keep mills operating on a hand-to-mouth basis. Demand for rail steel bars is showing a tendency to ease off, except for concrete reinforcing purposes. Fence post specifications, although still in good volume for this time of the year, are not quite so heavy as during the early part of the month. Small tonnages of rail steel bars are still bringing 2c., Chicago, but the bulk of the larger orders are being taken at 1.90c.

Mill prices per lb. are: Mild steel bars, 2.10c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 1.90c. to 2c., base, Chicago.

Rails and Track Supplies.—It is now reported that the Southern Pacific has divided 24,000 tons of rails between the Tennessee Coal, Iron & Railroad Co. and the Colorado Fuel & Iron Co. About 1000 tons of bolts and spikes and 4000 tons of steel tie plates were booked by local mills in miscellaneous orders during the week. The light rail market is quiet, and prices are steady at $36 to $38 per gross ton, Chicago district mill.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, $36 to $38 per gross ton, f.o.b. maker's mill.
Standard railroad spikes, 2.90c. to 3c. per lb. mill; track bolts with square nuts, 3.90c. to 4c. mill; steel tie plates, 2.25c. to 2.35c., mill; angle bars, 2.75c., mill.

Wire Products.—Retail stocks of wire products are moving more rapidly, and the jobbing trade is showing more activity than for many weeks past. Conditions in the central Northwest and the Southwest are encouraging to the trade, but, on the other hand, business emanating from the South is below its volume during the past few weeks. There is a sharp increase in the demand for nails, suggesting that the expected upturn in spring building is at hand. Makers of field fencing have announced fall terms. Specifications from the manufacturing trade are in fair volume and are well maintained, as measured by the average for the past few weeks. Mill operations average about 55 per cent, at which rate output is about equal to shipments.

Bolts, Nuts and Rivets.—Bolt and nut specifications from the railroads are holding up well, but those from industrial companies are light and are showing no tendency to increase, although there are indications that farm implement manufacturers will soon be more active. Prices on the whole are steady and without change. Makers anticipate that third-quarter contracts will be in preparation within the next week or ten days.

Reinforcing Bars.—This market is active both from the standpoint of lettings and inquiries. The differences between organized labor and the contractors appear to be having little or no bearing on the situation, inasmuch as most contractors engaged on active work are operating under the Landis award. Shipments of reinforcing bars are in good volume but not so heavy as a year ago. Shops are experiencing some difficulty in meeting delivery dates because of the spotty character of the demand imposed by contractors' erection programs. Architects are busily engaged on many new projects, which bulk large in the aggregate. Fresh inquiry for the week totals more than 3000 tons. On tonnage of average size, the warehouse price of 2.60c., Chicago, for billet steel reinforcing bars is steady. Lettings and fresh inquiries are shown on page 1537.

Cast Iron Pipe.—Demand from private interests is in good volume, but public inquiry and buying is considerably less active than during the early part of the month. Deliveries from makers are gradually being extended and will now average from 60 to 90 days on diameters from 6 to 12 in. There is little change in the price situation other than a tendency toward less firmness, as indicated by the fact that the bulk of current business is being placed at close to $41, base Birmingham, or $49.20, delivered, for 6-in. and larger sizes. Libertyville, Ill., has awarded 300 tons of 6, 8 and 12-in. centrifugal pipe to the National Cast Iron Pipe Co., and the same maker has taken 100 tons for Green Bay, Wis. Bids for 800 tons of 8 and 16-in. Class C pipe for Melvindale, Mich., have been rejected and revised tenders will be taken. Mankato, Minn., is in the market for 300 tons of 6 and 8-in. Class B pipe.

We quote per net ton, delivered Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4.

Coke.—Shipments of by-product foundry coke continue heavy and prices are $9.75 per net ton at ovens and $10.25 delivered in the Chicago switching district. Eastern beehive and by-product foundry coke is reported as entering western Michigan and eastern Indiana at 75c. to $1 below the Detroit and Chicago quotations.

Old Material.—The market appears to have reached a dead calm. Prices, on the whole, are unchanged and largely nominal, since transactions are few in number and the trade has little upon which to base values. The Wisconsin Steel Works took a small tonnage of heavy melting steel at $12.50, which is 25c, above the best offer last week. Dealers, however, are trading in this grade at $12 per gross ton, delivered. A carlot of rolled steel wheels brought $16.50 per gross ton, delivered, early in the week, but that price is no longer obtainable. Several offers for No. 1 railroad wrought have been made, but none is over $11 per net ton, delivered. The trade differs in opinion as to the trend of the market. Users are buying as little as production schedules will permit, and the industrial producers of scrap are selling rather than holding on for a possible rise in the market later in the year.

We quote delivered in consumers' yards, Chicago and vicinity, all freight and transfer charges paid for all items except relaying rails, including angle bars to match, which are quoted f.o.b. dealers' yards:

Per Gross Ton

Heavy melting steel	$12.00 to $12.50
Frogs, switches and guards, cut apart, and miscellaneous rails	13.25 to 13.75
Shoveling steel	12.00 to 12.50
Hydraulic compressed sheets	10.00 to 10.50
Drop forge flashings	9.00 to 9.50
Forged, cast and rolled steel car wheels	16.00 to 16.50
Railroad tires, charging box size	16.25 to 16.75
Railroad leaf springs, cut apart	16.00 to 16.50
Steel couplers and knuckles	15.00 to 15.50
Coil springs	16.50 to 17.00
Low phos. punchings	15.00 to 15.50
Axle turnings, foundry grade	13.00 to 13.50
Axle turnings, blast furn. grade	11.25 to 11.75
Relaying rails, 56 to 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Rerolling rails	14.75 to 15.25
Steel rails, less than 3 ft.	16.00 to 16.50
Iron rails	13.50 to 14.00
Cast iron borings	9.50 to 10.00
Short shoveling turnings	9.50 to 10.00
Machine shop turnings	7.25 to 7.75
Railroad malleable	16.50 to 17.00
Agricultural malleable	15.50 to 16.00
Angle bars, steel	14.00 to 14.50
Cast iron car wheels	15.00 to 15.50

Per Net Ton

No. 1 machinery cast	15.75 to 16.25
No. 1 railroad cast	14.75 to 15.25
No. 1 agricultural cast	14.50 to 15.00
Stove plate	12.50 to 13.00
Grate bars	12.00 to 12.50
Brake shoes	11.25 to 11.75
Iron angle and splice bars	13.00 to 13.50
Iron arch bars and transoms	18.50 to 19.00
Iron car axles	23.50 to 24.00
Steel car axles	17.00 to 17.50
No. 1 railroad wrought	10.50 to 11.00
No. 2 railroad wrought	10.75 to 11.25
No. 1 busheling	9.25 to 9.75
No. 2 busheling	5.50 to 6.00
Locomotive tires, smooth	15.50 to 16.00
Pipes and flues	8.50 to 9.00

Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes	3.10c.
Mild steel bars	3.00c.
Reinforcing bars, billet steel	2.60c.
Cold-finished steel bars and shafting—	
Rounds and hexagons	3.60c.
Flats and squares	4.10c.
Hoops	4.15c.
Bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.25c.
Standard railroad spikes	3.55c.
Track bolts	4.55c.
Structural rivets	3.50c.
Boiler rivets	3.70c.
	Per Cent Off List
Machine bolts	50 and 5
Carriage bolts	47½
Coach or lag screws	55 and 5
Hot-pressed nuts, square, tapped or blank	3.25c. off per lb.
Hot-pressed nuts, hexagons, tapped or blank,	3.75c. off per lb.
No. 8 black annealed wire, per 100 lb.	$3.30
Common wire nails, base, per keg	3.05
Cement coated nails, base, per keg	3.05

Cleveland

Sales of German Steel in Ohio—Better Inquiry from Automobile Industry

CLEVELAND, May 25.—New demand for steel is only moderate, the volume of business showing little if any change as compared with the previous few weeks. The reduction of $2 a ton in the price of steel bars evidently has not stimulated buying. The automotive industry, however, is beginning to show some interest in placing steel for delivery after July 1. The Chevrolet Motor Co., Detroit, which apparently has not suffered from the recent slump in automobile production and is credited with an output of 3000 cars per day, is inquiring for sheets, cold-rolled strip and finished steel in other forms for third quarter delivery, and some of the automobile parts manufacturers in Cleveland territory are placing orders for steel for the last half. Specifications from automobile builders are holding up to recent volume, and no further reports have come out indicating changes in production schedules for June.

Two lake boats placed during the week by the Interlake Steamship Co. require 10,000 tons of plates, which have been placed with the Bethlehem Steel Co. and the Youngstown Sheet & Tube Co. New York City has an inquiry out for a riveted steel pipe line, requiring 4000 tons of plates. The Louisville & Nashville Railroad has placed 300 tons of plates for cabooses and for locomotive repairs. Inquiry for steel in the building field has become more active.

The price of 1.90c., Pittsburgh, on steel bars has become general, although small lots are still bringing 2c. Plates and structural material are holding in this market at 1.90c., Pittsburgh.

German mills have become active competitors for steel in the Ohio territory and are reported to have booked several orders in steel bars, sheets and hot-rolled strip. Efforts have also been made to sell German plates in Cleveland. A Cleveland consumer has purchased a trial lot of hot-rolled strip at 2.10c., delivered, as compared with a price of 2.54c., delivered, for the same material carrying extras based on the ruling market price. It is stated that the price on the German strip is equivalent to a base price of 1.86c., Pittsburgh. The steel will be shipped to Montreal and transshipped to Cleveland at a transportation charge of 10c. per 100 lb. less than if it were shipped to New York and from there by rail. It is reported that hot-rolled strip steel from Germany is being offered at 1.80c. to 1.85c., delivered on the Pacific Coast.

Pig Iron.—Sales have again slumped after a short buying spurt. Orders taken by Cleveland producers the past week aggregated 10,000 tons, as compared with 25,000 tons the previous week. A large share of the business was in small lots for early shipment. While some third quarter tonnage has been booked, few consumers are yet taking any interest in that delivery, although producers expect some of the large buyers to come into the market shortly. Most consumers are ordering iron only as needed, and stocks are low. The slowing down of foundry operations has become more general. While the market lacks firmness, prices are being well maintained at $18.50, furnace, for foundry and malleable iron for shipment from Cleveland and Valley stacks to consuming points where there is competition. Some of the Lake furnaces continue to look for orders beyond their immediate territory, particularly in western and southern Ohio. For Cleveland delivery the furnace price is unchanged at $19.50. One Lake producer is holding to $20, furnace. In Michigan the price of $21, furnace, which has prevailed recently is being shaded 50c. The basic market shows signs of weakness. A Valley consumer purchased 500 tons of basic iron at $18, but this was placed with a broker who sold short, expecting to cover at that price or lower. A Valley producer sold 200 tons of low phosphorus iron to a Pittsburgh consumer at $27.50, furnace. Sales of several small lots of Ohio silvery iron are reported at regular schedules.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6.01 from Birmingham:

Basic, Valley furnace	$18.00 to $18.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25	20.00
Southern fdy., sil. 1.75 to 2.25	$26.51 to 28.01
Malleable	20.00
Ohio silvery, 8 per cent	30.52
Standard low phos., Valley furnace	27.50

Iron Ore.—Lake ore consumed during April amounted to 5,191,619 tons, as compared with 5,159,779 tons in March and with 4,812,997 tons in April last year. The amount of ore at furnaces on May 1 was 13,132,496 tons. The total on hand at furnaces and Lake Erie docks May 1 was 17,107,886 tons, as compared with 17,311,822 tons on May 1 last year. There were 201 furnaces using Lake ore in blast April 30, a gain of five for the month. The ore consumption of furnaces in the Central district during April was 2,757,089 tons, a decrease of 12,405 tons. Lake front furnaces consumed 2,145,487 tons, a gain for the month of 19,228 tons. Eastern furnaces consumed 155,500 tons, an increase of 7966 tons, and all-rail furnaces consumed 133,543 tons, a gain of 17,051 tons.

Coke.—A 25c. reduction to $7.50, ovens, has been made on Painesville by-product foundry coke for June shipment. This is a decline of $1 a ton from the winter peak. Connellsville foundry coke is unchanged at $4 to $5.50, ovens. The demand is very light and mostly in specifications against contracts.

Semi-Finished Steel.—The demand is holding up to recent volume. Small-lot sales are being made, and consumers having contracts are specifying for small tonnages as they are needed. Regular prices are being maintained.

Sheets.—Demand continues light and the market is still weak, particularly on black and galvanized sheets. However, mills are making stronger resistance against further reductions and evidently have not made deeper concessions than came out during the previous week or two. On black sheets 3.15c., Pittsburgh, appears to be the more common price, although 3.05c. is still being done, the low price usually being for heavier gages and for prompt shipment. Blue annealed sheets are holding fairly well at 2.40c., although some business is going at 2.35c. Galvanized sheets are still rather irregular, but on these 4.30c. appears to be the lowest price which most mills will quote. On this commodity 4.40c. is usually the peak price. Automobile body sheets are firm.

Cold-Rolled Strip Steel.—The demand continues slow, and some of the mills need orders. There has not been enough business the past week or two to test prices, but a test is expected on some inquiry now pending from Detroit. Most mills appear to be trying to hold to 3.75c., Cleveland.

Reinforcing Bars.—On billet steel reinforcing bars 1.90c., Pittsburgh, has become the common quotation. Rail steel bars are holding to 1.80c., mill, not yet having been affected by the $2 a ton decline on billet steel bars. Inquiry has become more active.

Warehouse Business.—Prices on steel bars have not yet been affected by the reduction in mill prices. Sheets are very irregular, sales of galvanized sheets being

Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and structural shapes	3.00c.
Mild steel bars	3.00c.
Cold-finished rounds and hexagons	3.90c.
Cold-finished flats and squares	4.40c.
Hoops and bands	3.65c.
No. 28 black sheets	4.10c.
No. 10 blue annealed sheets	3.25c.
No. 28 galvanized sheets	5.25c.
No. 9 annealed wire, per 100 lb	$3.00
No. 9 galvanized wire, per 100 lb	3.45
Common wire nails, base, per keg	3.00

reported at as low as 4.85c. Jobbers will probably reduce regular warehouse quotations on sheets this week to bring them in alinement with the recent reductions in mill prices.

Bolts, Nuts and Rivets.—Bolts and nuts are moving rather slowly, and there is very little new demand, orders being almost wholly against contracts. The industry is operating at 65 to 70 per cent of capacity. The demand for large rivets, which has been very dull, shows improvement and the price of $2.60 is holding in this market. Small rivets are firmer than they have been, but shading has not disappeared.

Old Material.—Prices on several grades still show a downward tendency. Heavy melting steel has declined 25c. a ton, machine shop turnings are lower, and foundry grades are weaker. The McKinney Steel Co. has again held up shipments on machine shop turnings, and the Otis Steel Co. has suspended shipments on heavy melting steel. Dealers are now paying $13.75 for heavy melting steel and $11.50 for borings and turnings for local delivery. In the Valley district heavy melting steel is quoted at $15 to $15.50. No new demand is coming from the mills. Because most of the Cleveland scrap outside of specialties is now consumed locally, the method of quoting prices has been changed in the table below, delivered prices being now given instead of f.o.b. Cleveland prices as heretofore.

We quote delivered consumers' yards in Cleveland per gross ton:

Heavy melting steel	$13.50 to $14.00
Rails for rolling	16.25 to 16.50
Rails under 3 ft	17.50 to 18.00
Low phosphorus billet, bloom and slab crops	18.50 to 19.00
Low phosphorus sheet bar crops	18.50 to 19.25
Low phosphorus plate scrap	18.50
Light plate scrap	17.50
Low phosphorus forging crops	17.25 to 17.50
Cast iron borings	11.00 to 11.50
Machine shop turnings	10.00 to 10.50
Mixed borings and short turnings	11.00 to 11.50
Compressed sheet steel	13.00 to 13.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	13.50 to 14.00
Railroad malleable	19.00 to 19.50
Light bundled sheet stampings	11.75 to 12.25
Steel axle turnings	12.50 to 13.00
No. 1 cast	16.50 to 17.00
No. 1 busheling	11.00 to 11.50
No. 2 busheling	10.50 to 11.00
Railroad grate bars	12.50 to 13.00
Pipes and flues	10.00 to 10.50

Philadelphia

May Steel Orders Show Gain Over April —Basic Sale at Unchanged Price

PHILADELPHIA, May 25.—The steel business, although having a surface aspect of quietness, is still in fairly good volume. With some local sales offices, orders this month will probably exceed those of April, but will not be up to the March rate. Recent reductions in prices on sheets and steel bars have not extended to other finished lines, which remain fairly firm. The pig iron market is quiet, with prices unchanged because there is not enough business to have any effect one way or the other. The scrap market is likewise dull, with price weakness continuing.

Pig Iron.—Foundry pig iron remains on the basis of $21.50 to $22, furnace, for No. 2 plain. The volume of business in the past week was not large, but there was a fair number of orders ranging from 100 to 500 tons, usually at the minimum price. The reduction of $1 a ton on Buffalo iron is somewhat disturbing to eastern Pennsylvania producers, who will be at a disadvantage in territory lying midway between this district and Buffalo. Confronted on one side by foreign iron and on the other by lower prices at Buffalo, the producers of this district may see a further restriction of their market, which has already been reduced in size by the virtual cutting off of New England, once a profitable source of business. The largest sale of the week was 3500 tons of basic to an Eastern steel company which a week or so ago bought 10,000 tons from another furnace. The more recent transaction marks no change in the price, and the basic market may still be quoted at a range of $21.75 to $22.25, delivered.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$22.26 to $22.76
East. Pa. No. 2X, 2.25 to 2.75 sil.	22.76 to 23.26
East. Pa. No. 1X	23.26 to 23.76
Virginia No. 2 plain, 1.75 to 2.25 sil.	27.67 to 28.67
Virginia No. 2X, 2.25 to 2.75 sil.	28.17 to 29.17
Basic delivered eastern Pa.	21.75 to 22.25
Gray forge	22.00 to 22.50
Malleable	22.50 to 23.00
Standard low phos. (f.o.b. furnace)	22.00 to 23.00
Copper bearing low phos. (f.o.b. furnace)	23.50 to 24.00

Ferromanganese.—The ferromanganese market is dull, with sales confined to occasional carload lots. Prices are unchanged, one Eastern producer naming $90 and the other $95, furnace.

Billets.—Quotations remain unchanged at $35 for rerolling quality and at $40 for forging quality, Pittsburgh base.

Plates.—While there has been somewhat of a let-up in plate buying, the mills of this district have had a fairly good month, operations ranging from about 60 to 75 per cent. Orders are mostly small, and buyers are accepting the current price of 1.90c., Pittsburgh, without question, although no one is inclined to buy for more than immediate requirements. Everything ordered is wanted in a hurry, a week's delivery being the average.

Structural Material.—The volume of small orders is fairly good. No action has been taken on the City Hall annex, the largest local job pending, which will take 5000 tons of steel. The Pennsylvania Railroad is inquiring for 2500 tons for bridges. Prices are unchanged, the usual range being 1.80c. to 1.90c., Pittsburgh.

Bars.—Sales of steel bars at 1.90c., Pittsburgh, have been in greater number in the past week. This price is usual on the more desirable orders, although many of the small orders have been sold at 2c., Pittsburgh. Eastern bar iron, which often follows the trend of steel bar prices, is unchanged at 1.90c., Pittsburgh, or 2.22c., Philadelphia.

Sheets.—The usual range of quotations on sheets is 2.35c. to 2.40c. on blue annealed, 3.10c. to 3.25c. on black and 4.40c. to 4.50c. on galvanized, but prices $1 a ton below the minimums named have been quoted in exceptional instances.

Imports.—Last week's imports at Philadelphia included the following: Pig iron from Germany, 3320 tons; pig iron from France, 508 tons; pig iron from the Netherlands, 350 tons; pig iron from India, 2711 tons; iron ore from Algeria, 6895 tons; steel blooms from France, 1020 tons; chrome ore from Greece, 600 tons;

Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Tank steel plates, ¾-in. and heavier	2.80c. to 3.00c.
Tank steel plates, ¼-in.	3.00c.
Structural shapes	2.75c. to 2.90c.
Soft steel bars, small shapes and iron bars (except bands)	3.00c.
Round-edge iron	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforcing steel bars, square, twisted and deformed	3.00c.
Cold-finished steel, rounds and hexagons	4.00c.
Cold-finished steel, squares and flats	4.50c.
Steel hoops	4.00c. to 4.25c.
Steel bands, No. 12 gage to ¼-in., inclusive	3.75c. to 3.90c.
Spring steel	5.00c.
No. 28 black sheets	4.55c.
No. 10 blue annealed sheets	3.50c.
No. 28 galvanized sheets	5.75c.
Diamond pattern floor plates—	
¼-in.	5.30c.
⅜-in.	5.50c.
Rails	3.20c.
Tool steel	8.50c.
Swedish iron bars	6.00c. to 6.50c.

steel bars from Germany, 208 tons; structural steel from Germany, 5 tons; steel wire from England, 5 tons.

Old Material.—Only minor changes in prices of a few grades of scrap have come within the week. The market is dull, and there is so little buying that prices are almost stationary for the first time in several weeks. A steel company is offering $15 for heavy melting steel, but has not bought a tonnage, and probably will not be able to do so at this figure because of the rigidness of its specifications. Some scrap brokers believe that the bottom of the market has been reached, but they do not look for any immediate improvement in business that will force prices higher.

We quote for delivery, consuming points in this district, as follows:

No. 1 heavy melting steel	$15.00 to $15.50
Scrap rails	15.00 to 15.50
Steel rails for rolling	16.50 to 17.00
No. 1 low phos., heavy, 0.04 per cent and under	20.00 to 20.50
Couplers and knuckles	18.00 to 18.50
Rolled steel wheels	18.00 to 18.50
Cast iron car wheels	17.00 to 17.50
No. 1 railroad wrought	17.00 to 17.50
No. 1 yard wrought	16.50 to 17.00
No. 1 forge fire	14.00
Bundled sheets (for steel works)	13.00
Mixed borings and turnings (for blast furnace)	12.50 to 13.00
Machine shop turnings (for steel works)	13.00
Heavy axle turnings (or equivalent)	14.50 to 15.00
Cast borings (for steel works and rolling mill)	13.50
Cast borings (for chemical plant)	15.50 to 16.00
No. 1 cast	17.00 to 18.00
Heavy breakable cast (for steel works)	16.00 to 16.50
Railroad grate bars	13.50
Stove plate (for steel works)	13.50
Wrought iron and soft steel pipes and tubes (new specifications)	15.00
Shafting	21.00 to 22.00
Steel axles	22.50 to 23.00

New York

Pig Iron Down $1—Corporation Advances Soft Steel Bars

NEW YORK, May 25.—Buffalo pig iron has declined $1 a ton to $20, base furnace, on malleable and foundry grades. The reduction was dictated not only by increasingly sharp competition in this district and in New England but by the low prices that have developed in the Valleys and other Western producing centers. Sales in this territory during the past week were unusually light, probably not exceeding 6000 tons in the aggregate. Inquiry, however, has revived in the past few days and now totals more than 10,000 tons. For various plants of the General Electric Co. approximately 6000 tons is before the market. There are a number of other inquiries calling for from 1000 tons to 1500 tons, both for third quarter and last half deliveries. The Standard Gas Equipment Corporation, New York, is in the market for 500 tons of foundry iron for third quarter delivery at its Baltimore plant, and there are a number of other 500-ton lots pending. There continue to be small inquiries for prompt or early shipment. The American Chain Co., Bridgeport, Conn., wants 100 tons of malleable for prompt shipment to its East York, Pa., works. Louis Sacks, Inc., Newark, is inquiring for 125 tons of malleable. Sales of foreign iron have not been large. The trade is interested in the countervailing duties which are to be imposed on German iron and steel products. It is not yet clear whether the increased duties will apply to pig iron or not.

We quote per gross ton delivered in the New York district as follows, having added to furnace prices $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.54 from Virginia:

East Pa. No. 2 fdy., sil. 1.75 to 2.25	$24.02 to $24.52
East Pa. No. 2X fdy., sil. 2.25 to 2.75	24.52 to 25.02
East Pa. No. 1X fdy., sil. 2.75 to 3.25	25.02 to 25.52
Buffalo fdy., sil. 1.75 to 2.25 (all-rail)	24.91
Buffalo fdy., sil. 1.75 to 2.25 (by barge canal, del'd alongside in lighterage limits, N. Y. and Brooklyn)	22.75
No. 2 Virginia fdy., sil. 1.75 to 2.25	27.54 to 29.54

Ferroalloys.—There continues to be an entire absence of inquiry for ferromanganese. Prices are unchanged and it is still available at $88, seaboard, as a minimum for the foreign alloy. Domestic makers are quoting $95, furnace. New business in spiegeleisen is confined to carloads and small lots at unchanged prices. Specifications on contract are fairly satisfactory.

Warehouse Business.—Prices of galvanized sheets have been reduced 15c. per 100 lb. by most warehouses in this district. The new schedule is 5.50c. per lb. base. A further reduction on both black and galvanized is represented in the establishment of an allowance of 15c. per 100 lb. on purchases of 50 bundles or more. The downward revision of prices reflects the lower mill basis. Other products are quite firm and several jobbers report that May will probably prove to be the largest month for business this year, even better than March.

Cast Iron Pipe.—Demand is light except for occasional small purchases by privately owned companies. Most makers, however, are well sold ahead and the French interest represented by B. Nicoll & Co., New York, is booked through the summer, except on a few sizes. The 14,000 tons of pipe to be purchased by the

Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes	3.34c.
Soft steel bars and small shapes	3.24c.
Iron bars	3.24c.
Iron bars, Swedish charcoal	7.00c. to 7.25c.
Cold-finished steel shafting and screw stock—	
Rounds and hexagons	4.00c.
Flats and squares	4.50c.
Cold-rolled strip, soft and quarter hard	6.25c.
Hoops	4.49c.
Bands	3.99c.
Blue annealed sheets (No. 10 gage)	3.89c.
Long terne sheets (No. 28 gage)	6.35c.
Standard tool steel	12.00c.
Wire, black annealed	4.50c.
Wire, galvanized annealed	5.15c.
Tire steel, 1½ x ½ in. and larger	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and larger	3.65c.
Open-hearth spring steel, bases	4.50c. to 7.00c.

	Per Cent Off List
Machine bolts, cut thread	40 and 10
Carriage bolts, cut thread	30 and 10
Coach screws	40 and 10

Boiler Tubes—	Per 100 Ft.
Lap welded steel, 2-in.	$17.33
Seamless steel, 2-in.	20.24
Charcoal iron, 2-in.	25.00
Charcoal iron, 4-in.	67.00

Discounts on Welded Pipe

Standard Steel—	Black	Galv.
⅛-in. butt	46	29
¼-in. butt	51	37
⅜-in. butt	53	39
2½-6-in. lap	48	35
7 and 8-in. lap	44	17
11 and 12-in. lap	37	12
Wrought Iron—		
⅛-in. butt	4	+19
¼-in. butt	11	+ 9
1-1½-in. butt	14	+ 6
2-in. lap	5	+14
3-6-in. lap	11	+ 6
7-12-in. lap	3	+16

Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100-lb. base box	$6.45	$6.20
Charcoal, per box—	A	AAA
IC	$9.70	$12.10
IX	12.00	14.25
IXX	13.90	16.00

Terne Plate (14 x 20 in.)

IC—20-lb. coating	$10.00 to $11.00
IC—30-lb. coating	12.00 to 13.00
IC—40-lb. coating	13.75 to 14.25

Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20	4.30c.
Nos. 22 and 24	4.35c.
No. 26	4.40c.
No. 28*	4.50c.
No. 30	4.70c.

Sheets, Galvanized

	Per Lb.
No. 14	4.60c.
No. 16	4.75c.
Nos. 18 and 20	4.90c.
Nos. 22 and 24	5.05c.
No. 26	5.20c.
No. 28*	5.50c.
No. 30	6.00c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Ladd Construction Co. for St. Petersburg, Fla., is reported to have been placed with the National Cast Iron Pipe Co., but this has not been confirmed. The 1500 tons of pipe for Union Beach, N. J., to be bought by the W. E. Sexton Co., Mineola, L. I., is still pending.

Coke.—Buying of foundry grade continues at a low level and prices show further weakness. Recent purchasing of furnace grade, however, has strengthened the market slightly so that $3.25 per ton Connellsville is about the minimum. Standard foundry is quoted at $7.91 to $9.41 per net ton, delivered Newark and Jersey City, N. J., $8.03 to $9.53, delivered northern New Jersey and $8.79 to $10.29, delivered New York or Brooklyn, N. Y. By-product continues at $9.75 to $10.77, delivered Newark or Jersey City, N. J.

We quote pressure pipe per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, $50.60 to $52.60; 4-in. and 5-in., $55.60 to $57.60; 3-in., $65.60 to $67.60; with $5 additional for Class A and gas pipe.

Old Material.—Buying prices of brokers are generally unchanged. No. 1 heavy melting steel is apparently coming out in sufficient volume at the present offering prices of brokers, $14.50 to $15 per ton, delivered. Borings and turnings are quoted at $12.50 to $13, delivered eastern Pennsylvania and other grades are also unchanged from last week, except for rerolling rails and cast iron car wheels, which show some weakness. With a large eastern Pennsylvania consumer expected to buy at $14.50 per ton, which would establish the brokers' buying price at about $14 per ton, delivered, no immediate improvement in the present situation is evidently in prospect.

Buying prices per gross ton, New York, follow:

Heavy melting steel (yard)	$9.75 to $10.25
Heavy melting steel (railroad or equivalent)	11.25 to 11.75
Rails for rolling	11.50 to 12.00
Relaying rails, nominal	23.00 to 24.00
Steel car axles	18.50 to 19.50
Iron car axles	21.50 to 22.00
No. 1 railroad wrought	13.50 to 14.00
Forge fire	9.50 to 10.00
No. 1 yard wrought, long	12.50 to 13.00
Cast borings (steel mill)	9.25 to 9.75
Cast borings (chemical)	12.50 to 13.00
Machine shop turnings	9.00 to 9.75
Mixed borings and turnings	9.25 to 9.75
Iron and steel pipe (1 in. diam., not under 2 ft. long)	11.25 to 11.50
Stove plate (steel mill)	9.25 to 9.75
Stove plate (foundry)	10.25 to 10.75
Locomotive grate bars	10.25 to 10.75
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	12.75 to 13.25
No. 1 heavy breakable cast	12.00 to 12.50

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$16.50 to $17.00
No. 1 heavy cast (column, building material, etc.), cupola size	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc)	14.00 to 14.50

Finished Steel.—No appreciable change in the volume of steel buying has developed within the past week, although some lines are reported as slightly quieter and marked with greater price competition. This is particularly true of sheets, on which prices have appeared as low as 3.05c. on black, 2.30c. on blue annealed and 4.30c. on galvanized, Pittsburgh basis, but these quotations are exceptional. The range on most of the orders of the week has been 3.10c. to 3.20c. on black, 2.35c. to 2.40c. on blue annealed and 4.35c. to 4.40c. on galvanized. Following more sales of steel bars at 1.90c., Pittsburgh, than reported a week ago, the United States Steel Corporation announced today that 2c. would apply hereafter on carload orders, with 2.10c. on smaller orders. Plates are holding fairly well at 1.90c., Pittsburgh, although $1 concessions have been given in a few instances on narrow plates. Most plate buyers are content to place small orders and there is little or no effort to break the price. The variations in prices of structural shapes which have existed for some weeks continue, but the situation has taken no turn toward weakness. A fair amount of fabricated steel work is being placed, but competition among fabricators is keen despite fairly well filled order books. Buyers of tin plate are awaiting announcement of the second half tin plate price, which, it is expected, will be a continuation of the present schedule. Pipe trade is very good. An order for 8000 tons of 8-in. oil well line pipe has been placed with the Youngstown Sheet & Tube Co.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.24c. to 2.34c. per lb.; plates, 2.19c. to 2.24c.; structural shapes, 2.14c. to 2.24c.; bar iron, 2.24c.

REINFORCING STEEL

More Than 9500 Tons of Pending Projects, but Awards Are Only 3200 Tons

New projects for concrete reinforcing bars reported for the week totaled more than 9500 tons, the largest, 2000 tons, being for a pier at Mobile, Ala., on which general contract bids close May 31. Awards amounted to about 3200 tons, mostly for small lots, as follows:

NEWARK, N. J., 100 tons, Feibleman Building, William Street, to Igoe Brothers.

NEW HAVEN, CONN., 150 tons, arena, to Truscon Steel Co.

EAST ORANGE, N. J., 170 tons, Muir department store, to Igoe Brothers.

DUQUESNE, PA., 150 tons, reservoir, to Carlem Engineering Co., Pittsburgh.

BRADDOCK, PA., 50 tons, Braddock Hospital, to Metzger & Richardson Co., Pittsburgh.

WESTMORELAND, PA., 150 tons, State highway, to Carlem Engineering Co.

CLEVELAND, 350 tons, Kerr Garage, to Bourne-Fuller Co.

CINCINNATI, 450 tons, building for Crosley Radio Corporation, to Pollak Steel Co.

CHICAGO, 100 tons rail steel, building for Creamery Package Co., to Calumet Steel Co.

WISCONSIN, 125 tons, State road work, to Concrete Steel Co.

ST. LOUIS, 300 tons, apartment Hotel, Delmar and Euclid Streets, to Laclede Steel Co., St. Louis.

ST. LOUIS, 150 tons, Southside Buick Co., garage and salesroom, to Laclede Steel Co., St. Louis.

SAN FRANCISCO, 800 tons, Illinois-Pacific Glass Co. warehouse, to unnamed company handling foreign bars.

HONOLULU, 152 tons, Camehaneha Highway, to unnamed local company.

Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

JERSEY CITY, 315 tons, public school No. 22; general contract figures to be taken June 2.

JERSEY CITY, 140 tons, Y. W. C. A. building; plans being revised.

NEW YORK, 400 tons, viaduct for Bronx Terminal Markets; general contract awarded to Charles Meads & Co., New York.

BUFFALO, 500 tons, Federal Concrete Co.

BUFFALO, 200 tons, municipal pier; bids in.

ROCHESTER, 200 tons; general contract awarded.

HARRISON, N. Y., 400 tons, extension of New York, Westchester & Boston Railway from Mamaroneck to Harrison; general contract awarded to Dwight P. Robinson & Co., Inc.

MEADVILLE, PA., 200 tons, factory for Hookless Fastener Co.

MOBILE, ALA., 2000 tons, pier; general contract bids close May 31.

TOLEDO, OHIO, 375 tons, Samuel Davis warehouse.

LOUISVILLE, 150 tons, building for J. B. Hilliard & Sons Co.; bids in.

GARY, IND., 500 tons, Horace Mann Public School; general contractor, Rufus Danner, Hammond, Ind.

CHICAGO, 140 tons, Emmerman Building, Sheridan Road and Lawrence Avenue; general contractor, Avery Brundage.

CHICAGO, 100 tons, building for Fish Furniture Co.; architect, Frank D. Chase, Inc.

CHICAGO, 150 tons, Joseph Levett Public School.

CHICAGO, 150 tons, Louis Pasteur Public School.

CHICAGO, 100 tons, Jackson Park Hospital; architect, Dwight G. Wallace.

CHICAGO, 200 tons, Midland Club building; architect, K. M. Vitzhum.

CHICAGO, 350 tons, Builders office building; Graham, Anderson, Probst & White, architects.

NORTH CHICAGO, 200 tons, five hospital buildings for United States Veteran Bureau.

WAUKEGAN, ILL., 1000 tons, addition to power plant of Public Service Co. of Northern Illinois.

ST. CLOUD, MINN., 300 tons, hospital.

IOWA CITY, IOWA, 1000 tons, hospital for State University.

ST. LOUIS; 500 tons, municipal waterworks foundation.

San Francisco

Union Oil Co. Places 4340 Tons of Plates —Bids Close on Rails

SAN FRANCISCO, May 22 (*By Air Mail*).—Outstanding among developments of the week was an award by the Union Oil Co., Los Angeles, of 4340 tons of plates for tank work to one Eastern and two Western fabricators, the closing of bids by the Southern Pacific Co. on 28,028 tons of rails, and the arrival of 6000 tons of English coke and 500 tons of Indian pig iron. While buying has been slightly stronger in most departments of the market, there is fresh evidence that price concessions are more general, particularly in plates and structural shapes.

Pig Iron.—One local importer has received a shipment of Indian foundry iron, which is being sold at about $24.50, duty paid, f.o.b. cars San Francisco, and another has received a shipment of about 500 tons of special analysis English and Continental iron, which is not being offered in the open market. Buyers continue to exercise caution in placing orders for their forward needs, and no large tonnage is known to have come up for bids during the week. Quotations are as follows:

	Per Gross Ton
*Utah basic	$26.00 to $27.00
*Utah foundry, sil. 2.75 to 3.25	26.00 to 27.00
**English foundry, sil. 2.75 to 3.25	25.00
**Indian foundry, sil. 2.75 to 3.25	24.50
**German foundry, sil. 2.75 to 3.25	23.00 to 23.50
**Dutch foundry, sil. 2.75 to 3.25	22.50
**Belgian foundry, sil. 2.75 to 3.25	22.00

*Delivered San Francisco.
**Duty paid, f.o.b. cars San Francisco.

Shapes.—Lettings of fabricated steel during the week total 2165 tons; fresh inquiries call for 1010 tons. The largest individual award of the week, 650 tons for the Commercial Union Building addition, San Francisco, was placed with the Pacific Rolling Mill Co., Inc. Six hundred tons for the Multnomah Stadium, Portland, Ore., has been taken by Poole & McGonigle. The Standard Oil Co. is understood to have placed 150 tons of special billets with an Eastern mill. No action has yet been taken by the Southern Pacific Equipment Co., San Francisco, on its recent inquiry for 3500 tons. While Eastern mills continue to quote plain material at 2.30c. to 2.35c., c.i.f. Coast ports, a quotation of 2.25c. is understood to have been made on a special tonnage.

Plates.—The Union Oil Co., Los Angeles, has awarded 4340 tons for tank work as follows: Six 80,000-bbl. tanks, 1860 tons, to Western Pipe & Steel Co.; five 80,000-bbl. tanks, 1550 tons, to Chicago Bridge & Iron Works; three 80,000-bbl. tanks, 930 tons, to the Lacy Mfg. Co. If the Union Oil Co. places its entire original inquiry, which called for 23,000 tons, it has still 18,660 tons to award. The Associated Oil Co. has placed 600 tons for two barges with the Los Angeles Shipbuilding Co. and the Bethlehem Shipbuilding Co. Fresh inquiries call for about 2100 tons, 1400 tons of which will be required for a municipal pipe line for Tacoma, Wash. Eastern mills continue to quote 2.25c. to 2.30c., c.i.f. Coast ports.

Bars.—Because of the local carpenters' strike, now in its eighth week, construction work has slowed down somewhat, particularly concrete construction. Most of the reinforcing bar lettings call for less than 100 tons, with one exception, namely, 800 tons, for the Illinois-Pacific Glass Co. warehouse, Fifteenth and Folsom Streets, San Francisco, which was placed with a local firm handling Belgian bars. No confirmation has been obtained in regard to the price quoted on this particular job, but it is understood to have been considerably below the figures named by local jobbers, who quote as follows: 2.80c. base per lb. on lots of 250 tons; 2.95c. base per lb. on carload lots, and 3.20c. base on less than carload lots.

Rails and Track Supplies.—The Southern Pacific Co. has closed bids on 23,748 gross tons of 75-lb., 90-lb. and 110-lb. Tee-rails, and 4280 gross tons of 128-lb. girder rails. No action has yet been taken by the city of Seattle, Wash., on its recent inquiry for 550 tons of rails. The Johnson-Monarch Co., Portland, Ore., has been awarded the contract for the construction of eight miles of railroad and spurs for the Sugar Pine Lumber Co., Fresno, Cal.

Sheets.—Blue annealed sheets are now being quoted by Eastern mills at 2.40c., base Pittsburgh. Galvanized sheets are quoted at 5.15c., c.i.f. Coast ports, or 4.45c., base Pittsburgh.

Cast Iron Pipe.—The city of Santa Ana, Cal., has awarded 190 tons of 8-in. Class B to B. Nicoll & Co. The American Cast Iron Pipe Co. is low bidder for 103 tons of 4-in. and 6-in. Class B for the city of Santa Cruz, Cal. The city of Los Angeles, Cal., is calling for 1088 tons under Specification 792-A.

Warehouse Business.—Somewhat more active buying developed during the past week, but individual orders continue to be relatively small. Prices are unchanged.

Coke.—A local importer has received a shipment of 6000 tons of English coke, which is being distributed locally and in the Los Angeles district. Another importer has contracted for a shipment of German coke because of the improbability of getting fresh shipments from England. Local importers quote as follows:

English beehive, $15 to $16 per ton at incoming dock, and English by-product, $12 to $14; German by-product, $11.50 to $12.

Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and structural shapes	3.30c.
Mild steel bars and small angles	3.30c.
Small channels and tees, ¾-in. to 2¾-in.	3.90c.
Spring steel, ¼-in. and thicker	6.30c.
No. 28 black sheets	4.75c.
No. 10 blue annealed sheets	3.75c.
No. 28 galvanized sheets	6.00c.
Common wire nails, base per keg	$3.50
Cement coated nails, base per keg	3.00

Birmingham

Pig Iron Holds at $22—Coke Stronger— Cast Pipe Prices Weaken

BIRMINGHAM, May 25.—The larger melters of pig iron have bought little tonnage for third quarter and apparently are still looking for a reduction in prices. Furnaces are receiving numerous inquiries, but little business outside of small lots is being placed. Notwithstanding the attitude of buyers the market is being held at $22, base Birmingham, for foundry iron. Fourteen blast furnaces in this State are producing foundry iron and, with shipments heavy, are accumulating little surplus stock on their yards. The Sloss-Sheffield Steel & Iron Co. will blow out another furnace for relining within the next four or five weeks when its No. 4 furnace at North Birmingham gets back into blast.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$22.00
No. 1 foundry, 2.25 to 2.75 sil.	22.50
Basic	22.00
Charcoal, warm blast	$30.00 to 32.00

Rolled Steel.—Additional export business has been allocated to Corporation mills in this district, which have also booked fresh railroad tonnage. Independent mills, as well as structural steel fabricators and tank makers, are busy. The smaller fabricators are finding enough work locally to keep them occupied. Soft steel bars are quoted at 2.15c. to 2.25c., base Birmingham, and plates and structural shapes at 2.05c. to 2.15c.

Cast Iron Pipe.—Pressure pipe shops are being pressed for deliveries, but inquiry has slackened materially and prices have weakened. The market is no longer so firm at $40, base Birmingham, for 6-in. and larger sizes. Shops have a considerable amount of far-Western business on their books and are delivering via the Panama Canal. Owing to unforeseen delays the American Cast Iron Pipe Co. will probably not start operations in its new centrifugal shop until next month.

Coke.—Production and shipments are well maintained, and prices are firm at $5.50 per net ton, Birmingham, on foundry coke. Independent ovens expect to produce steadily throughout the summer.

Old Material.—Melters are buying little scrap, being confident that they will be able to purchase it on favorable terms when they need it. Meanwhile deliveries continue to be made against old contracts. Prices remain unchanged.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings, chemical	$15.00 to $16.00
Heavy melting steel	13.00 to 14.00
Railroad wrought	12.00 to 13.00
Steel axles	18.00 to 19.00
Iron axles	18.00 to 19.00
Steel rails	18.00 to 18.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 16.50
Stove plate	14.00 to 14.50
Machine shop turnings	8.00 to 8.50
Cast iron borings	8.00 to 9.00
Rails for rolling	15.00 to 16.00

St. Louis

Better Demand for Plates, Shapes and Bars—Declines in Scrap

ST. LOUIS, May 25.—Sales of pig iron during the last week totaled only about 1500 tons, of which 1200 tons were booked by the local maker and 300 tons by a leading Southern independent interest. A railroad car builder in the district bought 500 tons for shipment within the next 30 to 60 days. No inquiries are pending. There is a falling off in the melt of stove plants and jobbing foundries. Most melters are content to buy only a carload of pig iron as they require it and are not much concerned with the future. The market is nominally unchanged.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices, $2.16 freight from Chicago, $4.42 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$22.66 to $23.16
Northern malleable, sil. 1.75 to 2.25	22.66 to 23.16
Basic	23.16 to 24.16
Southern fdy., sil. 1.75 to 2.25	24.92 to 26.42
Granite City iron, sil. 1.75 to 2.25	23.31 to 23.81

Coke.—There is a fairly good demand for foundry coke. The price at St. Louis is $10, with some distant oven meeting the quotation of those located here. There is the regular seasonal lessening of the demand for domestic coke.

Finished Iron and Steel.—Buying of plates, shapes and bars is reported to be better so far this month than for the corresponding period in April, although individual orders are still very small. Some improvement in demand for reinforcing bars is reported. The smaller fabricators of structural steel in the district are reported to be fairly busy, but the larger plants need orders badly.

Old Material.—The market for old material continues weak, with steel angle bars 50c. lower, iron car axles $1 lower, cast iron borings 25c. off, and No. 1 busheling 50c. lower. Consumers in the district are buying almost nothing, and dealers are ordering only what is needed to fill contracts. New lists during the week include: Baltimore & Ohio, 35,000 tons; Dodge Brothers, Inc., 7500 tons; Louisville & Nashville, 1200 tons; Missouri Pacific, 700 tons; Chicago & Western Indiana, 200 tons, and Chesapeake & Ohio, 150 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton

Iron rails	$12.00 to $12.50
Rails for rolling	14.75 to 15.00
Steel rails less than 3 ft.	16.50 to 17.00
Relaying rails, 60 lb. and under	24.00 to 25.00
Relaying rails, 70 lb. and over	30.00 to 31.00
Cast iron car wheels	15.50 to 16.00
Heavy melting steel	12.00 to 12.50
Heavy shoveling steel	12.00 to 12.50
Frogs, switches and guards cut apart	13.50 to 14.00
Railroad springs	16.00 to 16.50
Heavy axle and tire turnings	8.50 to 9.00
No. 1 locomotive tires	16.00 to 16.50

Per Net Ton

Steel angle bars	$11.50 to $12.00
Steel car axles	17.00 to 17.50
Iron car axles	20.50 to 21.00
Wrought iron bars and transoms	18.00 to 18.50
No. 1 railroad wrought	11.00 to 11.50
No. 2 railroad wrought	11.00 to 11.25
Cast iron borings	9.25 to 9.75
No. 1 busheling	10.50 to 11.00
No. 1 railroad cast	10.00 to 10.50
No. 1 machinery cast	16.50 to 17.00
Railroad malleable	13.50 to 14.00
Machine shop turnings	5.75 to 6.25
Bundled sheets	6.50 to 7.00

Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and structural shapes	3.25c.
Bars, mild steel or iron	3.15c.
Cold-finished rounds, shafting and screw stock	3.75c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.70c.
Black corrugated sheets	4.65c.
Galvanized corrugated sheets	5.75c.
Structural rivets	3.65c.
Boiler rivets	3.85c.
	Per Cent Off List
Tank rivets, 7/8-in. and smaller	70
Machine bolts	50 and 5
Carriage bolts	47½
Lag screws	55 and 5
Hot-pressed nuts, square, blank or tapped	3.25c. off per lb.
Hot-pressed nuts, hexagons, blank or tapped	3.75c. off per lb.

Cincinnati

Foundry Iron Drops 50c. at Ironton—Bars, Plates, Shapes Are Holding

CINCINNATI, May 25.—Pressure applied by pig iron buyers in this territory has resulted in a drop in the price of foundry iron from the Ironton district to $19.50, base furnace, a decline of 50c. a ton. However, the weakening of the market has failed to bring out any attractive tonnage, and sales have been confined to small lots for early shipment. It is possible that the appearance of a large inquiry would be the occasion for a further recession in the price of Northern foundry iron. The only active merchant furnace in Tennessee is sold up for this quarter, and the nominal quotation on its iron is $20.50, base Birmingham. Alabama producers apparently are not concerned over the fact that many melters in this territory are now using Northern in place of Southern foundry iron. Iron from that State remains at $22, base Birmingham, which excludes it from this market. Weakness in malleable iron has cropped out, and prices range from $19 to $19.50, base furnace. Sales of Jackson County silvery iron have been negligible, but the present schedule of quotations is unchanged. Two melters in Central Ohio each have bought 400 tons of foundry iron. The only important inquiry is from the Kalamazoo Stove Co., Kalamazoo, Mich., for 500 to 1000 tons of foundry iron for June delivery.

Based on freight rates of $3.69 from Birmingham and $1.89 from Ironton, we quote f.o.b. Cincinnati:

Alabama fdy., sil. 1.75 to 2.25 (base)	$25.69
Alabama fdy., sil. 2.25 to 2.75	26.19
Tennessee fdy., sil. 1.75 to 2.25	24.19
Southern Ohio silvery, 8 per cent	30.39
So. Ohio fdy., sil. 1.75 to 2.25	$21.39 to 21.89
So. Ohio malleable	20.89 to 21.39

Finished Material.—Although adhering to a policy of buying only for immediate requirements, consumers in this territory have contracted for a moderate amount of material in the past week. In some instances prospective purchasers of bars, plates and shapes have thoroughly canvassed the market in an effort to find at least one producer willing to shade current quotations, but their endeavors have been futile. While there have been reports of price concessions, none has assumed tangible form except in connection with sheets. Independent sheet mills have tried to stimulate business by making reductions of from $1 to $2 a ton on galvanized, black and blue annealed. Despite the fact that sheet producers nearby have been dependent upon current tonnage to sustain their present

rate of operations, they have averaged close to 80 per cent in the past month. Bars are selling at 2c., base Pittsburgh, except in sections where competition from Chicago mills has brought out a price of 1.90c. Structural shapes are in fair demand at 1.90c., base Pittsburgh, and tank plates are steady at the same figure, although there are recurring reports that business has been placed at 1.85c. The Louisville & Nashville Railroad has bought 1000 tons of plates from a Southern mill. Black sheets are being sold at 3.15c. to 3.25c., base Pittsburgh, while galvanized sheets are weak, with 4.40c. to 4.50c., base Pittsburgh, the prevailing range of prices. The movement of blue annealed at 2.40c., base Pittsburgh, has been light. In wire products, specifications and orders have shown improvement, and prices are slightly stronger. There is no difficulty, however, in securing common wire nails at approximately $2.75 per keg, delivered at the river bank in Cincinnati. Plain wire is quoted at $2.50 per 100 lb., Ironton or Pittsburgh.

Reinforcing Bars.—The Ferro Concrete Construction Co., which has been awarded a general contract for a new factory for the Crosley Radio Corporation, Cincinnati, has purchased 450 tons of bars from the Pollak Steel Co. Otherwise, awards have been confined to small lots ranging from 25 to 75 tons. Prices are steady, with new billet bars at 2c., Cleveland, and rail steel bars at 1.90c., mill.

Warehouse Business.—There has been a perceptible improvement in business during the past week, although the volume of sales this month is running well behind that of April. Outstanding at the moment is the liberal demand for tank plates. Quotations are unchanged.

Old Material.—The market is exceptionally sluggish. Mills are taking shipments on contract, but are unwilling to contract for fresh tonnage unless they can buy to unusual advantage. Dealers are refusing to sell on that basis. Demand from the foundry trade has been light. There has been no change in prices, but quotations on many items are weakening.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

Per Gross Ton	
Heavy melting steel	$11.00 to $11.50
Scrap rails for melting	11.50 to 12.00
Short rails	16.50 to 17.00
Relaying rails	27.00 to 27.50
Rails for rolling	13.00 to 13.50
Old car wheels	12.50 to 13.00
No. 1 locomotive tires	16.50 to 17.00
Railroad malleable	15.00 to 15.50
Agricultural malleable	13.50 to 14.00
Loose sheet clippings	6.50 to 7.00
Champion bundled sheets	8.50 to 9.00
Per Net Ton	
Cast iron borings	6.50 to 7.00
Machine shop turnings	6.00 to 6.50
No. 1 machinery cast	17.00 to 18.00
No. 1 railroad cast	13.50 to 14.00
Iron axles	20.00 to 20.50
No. 1 railroad wrought	8.50 to 9.00
Pipes and flues	7.00 to 7.50
No. 1 busheling	8.50 to 9.00
Mixed busheling	6.50 to 7.00
Burnt cast	6.50 to 7.00
Stove plate	8.50 to 9.00
Brake shoes	9.00 to 9.50

Coke.—There has been a moderate movement of by-product foundry coke this month, although it will fail to attain the level reached in April. While no formal announcement of the June prices on by-product coke has been made, it is understood that they will remain unchanged, with foundry coke at $10.14, delivered Cincinnati. Specifications and orders for Beehive foundry coke have held up fairly well in the past two weeks.

Based on freight rates of $2.14 from Ashland, Ky., $3.53 from Connellsville, and $2.59 from Wise County ovens and New River ovens, we quote f.o.b. Cincinnati: Connellsville foundry, $7.53 to $9.53; Wise County foundry, $6.84 to $7.59; New River foundry, $9.59 to $10.09; by-product foundry, $10.14.

Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes	3.40c.
Bars, mild steel or iron	3.30c.
Reinforcing bars	3.30c.
Hoops	4.00c. to 4.25c.
Bands	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares	4.35c.
Open-hearth spring steel	4.75c. to 5c.
No. 28 black sheets	4.10c. to 4.30c.
No. 10 blue annealed sheets	3.60c.
No. 28 galvanized sheets	5.25c to 5.40c.
Structural rivets	3.75c.
Small rivets	65 per cent off list
No. 9 annealed wire, per 100 lb	$3.00
Common wire nails, base per keg	2.95
Cement coated nails, base per 100-lb. keg	3.15
Chain, per 100 lb	7.55
	Net per 100 Ft.
Lap welded steel boiler tubes, 2-in	$18.00
4-in.	38.00
Seamless steel boiler tubes, 2-in	19.00
4-in.	39.00

Boston

Buffalo Iron Drops $1 a Ton—Pipe Deliveries Extended—Iron Imports Small

BOSTON, May 25.—Buffalo furnaces, encountering as keen competition in other sections of the country as they have in New England, have reduced prices on foundry pig iron from $21 to $20 a ton, base furnace. This reduction was foreshadowed by recent offerings of No. 2X foundry iron from Eastern New York at $25 a ton, delivered New England, contrasted with $25.91 from Buffalo. German iron has been sold here at $19.50, on dock duty paid. Distress German iron sold recently at $19 on dock here, but unencumbered No. 2 X iron today is generally quoted at $20 because of talk of larger import duties within 30 days. Competition from foreign iron appears to be diminishing, presumably because of financial losses suffered by importers the past month or two. Providence, R. I., stocks of foreign iron are cleaned up, and it is said no more foreign iron will be brought to that port. Meanwhile New England foundries, because of business conditions, are buying from hand to mouth, and only at bargain prices. The one exception the past week was the purchase of 600 tons of No. 2 X German iron and an equal amount of domestic iron for third quarter delivery by a Vermont melter. Representatives of the Mystic Iron Works, Everett, Mass., are calling on the foundry trade more for the purpose of introducing themselves than to solicit business. According to the status of things today, the Everett furnace probably will not be blown in until late in August or possibly not until September.

Warehouse Prices, f.o.b. Boston

	Base per Lb.
Soft steel bars and small shapes	3.265c.
Flats, hot rolled	4.15c.
Reinforcing bars	3.265c. to 3.54c.
Iron bars—	
Refined	3.265c.
Best refined	4.60c.
Wayne	5.50c.
Norway, rounds	6.60c.
Norway, squares and flats	7.10c.
Structural shapes—	
Angles and beams	3.365c.
Tees	3.365c.
Zees	3.465c.
Plates	3.365c.
Spring steel—	
Open-hearth	5.00c. to 10.00c.
Crucible	12.00c.
Tire steel	4.50c. to 4.75c.
Bands	4.015c. to 5.00c.
Hoop steel	5.50c. to 6.00c.
Cold-rolled steel—	
Rounds and hexagons	3.95c.
Squares and flats	4.45c.
Toe calk steel	6.00c.

We quote delivered prices on the basis of the latest sales as follows, having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia, and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$25.15 to $25.65
East. Penn., sil. 2.25 to 2.75	25.65 to 26.15
Buffalo, sil. 1.75 to 2.25	24.91
Buffalo, sil. 2.25 to 2.75	25.41
Virginia, sil. 1.75 to 2.25	27.92 to 29.92
Virginia, sil. 2.25 to 2.75	28.42 to 30.42
Alabama, sil. 1.75 to 2.25	28.91 to 31.60
Alabama, sil. 2.25 to 2.75	29.41 to 32.10

Cast Iron Pipe.—The outstanding feature of the market is extended deliveries, resulting from the oversold condition of foundries. It is understood that on April 30, some foundries had sufficient orders for certain sizes of pipe to absorb output until late in the fall, and that more stock will have been sold this month

than produced. While other sizes are not as oversold, deliveries assuredly are more extended than usual, which accounts for the stiffness of prices. Open quotations on domestic pipe are: 4-in., $60.10 a ton, delivered common Boston freight rate points; 6-in. to 12-in., $55.10 to $56.10; larger pipe, $54.10 to $55.10. A differential of $5 a ton is asked on Class A and gas pipe. Woonsocket, R. I., has awarded 150 tons of 4-in. to 12-in. pipe to the United States Cast Iron Pipe & Foundry Co., and Meriden, Conn., has placed 400 tons of 12-in. and 16-in. with the Warren Foundry & Pipe Co. Bids close May 26 for 650 tons of 8-in. and 12-in. pipe required by Taunton, Mass., and on May 27 on 150 tons of 6-in. wanted by Marion, Mass.

Coke.—Local by-product foundry coke prices do not reflect any weakness that may exist in the Connellsville market. Both the New England Coal & Coke Co. and the Providence Gas Co. are holding to $12 a ton, delivered within a $3.10 freight rate zone. Good Connellsville coke is obtainable at $1.66 a ton less, delivered, for prompt shipment or delivery over the remainder of 1926. The New England ovens have yet to open books for last-half contracts. Consumption of New England coke has fallen off somewhat. That of Connellsville coke is not large, although increasing.

Warehouse Business.—The movement of iron and steel out of warehouses is not developing as was anticipated early in May. Consumers continue to buy bars, angles, plates, shapes and sheets in a hand-to-mouth way, which increases warehouse handling charges. The demand for nails, particularly wire nails, is fairly good, but spikes and other lines have comparatively little call. Warehouses, in turn, are buying cautiously, although maintaining well assorted stocks.

Iron Importations.—Pig iron importations so far this month have fallen off noticably. They include 1385 tons of Indian iron, 250 tons shipped direct from Germany and 1244 tons shipped from the Continent, a total of 2879 tons, bringing the aggregate imports for the first five months of this year to date to 34,741 tons, contrasted with 53,591 tons for the corresponding period last year. Certain local pig iron houses maintain that imports for the country at large so far this year have amounted to 350,000 tons.

Shapes and Plates.—Plates and shapes are holding at 1.90c. per lb., base, Pittsburgh. New buying is small, but mills are making good shipments on old contracts. It is intimated that 7600 tons of steel will be let late this week for a bridge at Bath, Me., and also several smaller jobs, requiring perhaps 1000 tons.

Old Material.—Business is quiet, although more stock was moved out of New England the past week than appeared on the surface, much of it at a loss to sellers. Prices are weak, averaging approximately 50c. a ton lower on all material but heavy melting steel, rails and wrought. Current activity is confined largely to those shippers maintaining New England yards. Other brokers report difficulty in securing material at going prices. The Boston & Maine Railroad yesterday closed bids on 65 to 70 cars of miscellaneous material, and the Watertown arsenal, Watertown, Mass., on about 1000 tons of material, of which approximately 700 tons was breakable cast iron.

The following prices are for gross-ton lots delivered consuming points:

Textile cast	$18.50 to $19.00
No. 1 machinery cast	16.50 to 17.00
No. 2 machinery cast	14.50 to 15.00
Stove plate	13.00 to 13.50
Railroad malleable	19.00 to 19.50

The following prices are offered per gross-ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$10.00 to $10.50
No. 1 railroad wrought	12.00 to 12.50
No. 1 yard wrought	12.00 to 12.50
Wrought pipe (1 in. in diameter, over 2 ft. long)	9.50 to 10.50
Machine shop turnings	8.00 to 8.50
Cast iron borings, chemical	10.00 to 10.50
Cast iron borings, rolling mill	8.00 to 8.50
Blast furnace borings and turnings	8.00 to 8.50
Forged scrap	8.25 to 8.75
Bundled skeleton, long	8.00 to 8.50
Forged flashings	9.00 to 9.50
Bundled cotton ties, long	8.25 to 8.50
Bundled cotton ties, short	8.50 to 9.00
Shafting	15.00 to 15.50
Street car axles	15.00 to 15.50
Rails for rerolling	11.50 to 12.00
Scrap rails	10.00 to 10.50

Toronto

Scrap Demand Lags—Lower Duty on Automobile Parts Affects Foundries

TORONTO, ONT., May 25.—The Canadian iron and steel scrap market, for some time past, has been passing through a state of stagnation, and while dealers have been continually looking forward to better conditions, no improvement in the resale demand has been forthcoming. Mills are showing little or no interest in scrap requirements and foundries are confining their purchases to small-tonnage lots for immediate delivery. Electric furnace operators, implement makers and a few radiator companies have furnished some demand of late, and regular shipments of scrap are going forward on this account. The demand for heavy melting steel and turnings is light, but some life has recently featured the demand for machinery scrap.

Canadian mills have shown general improvement in new business since the first of the year and are running at close to capacity, but foundries are operating at only 35 to 50 per cent. The lowering of the duty on automobiles and automobile parts, as announced in the Robb budget last month, has had a further demoralizing effect on foundry activities, especially those engaged in the manufacture of motor car parts. In the Montreal market practically the same conditions exist. A slight improvement in export business has featured the market during the past few weeks, and resulted in a slightly stronger tone in the Montreal market, but domestic business continues dull. Canadian dealers' buying prices are as follows:

	Toronto	Montreal
Per Gross Ton		
Steel turnings	$10.00	$6.50
Machine shop turnings	9.50	6.50
Wrought pipe	7.00	6.00
Rails	11.00	8.50
No. 1 wrought scrap	11.00	13.00
Heavy melting steel	10.50	8.00
Steel axles	16.00	17.00
Axles, wrought iron	18.00	19.00
Per Net Ton		
Standard car wheels	16.00	16.00
Malleable scrap	13.00	12.00
Stove plate	11.00	12.00
No. 1 machinery cast	16.00	17.00

Seattle

Steel Inquiries and Bookings Decline—Much Structural Work in Sight

SEATTLE, May 21.—For the first time this year there is a falling off in new inquiries and in volume of business placed. This has had the usual effect of weakening prices, which are now lower on all kinds of steel products, especially sheets and plates, the former being at least $2 per ton lower, and the latter from $1 to $2.

Jobbers report that the first half of May showed some recession in business, compared with the same period in April. There is no buying ahead whatever; orders are only for nearby needs. A strike among the carpenters in Tacoma, Wash., has practically stopped new building there, and recently the contractors met and declared for the open shop, so that the strike may last for considerable time.

Pig Iron.—There is little activity among foundries, and buying of pig iron is light. The Utah furnace continues to quote about $26, delivered Seattle, for basic,

Warehouse Prices, f.o.b. Seattle

	Base per Lb.
Beams and channels	3.35c.
Plates	3.25c.
Channels, bar sizes	3.75c.
Reinforcing bars	3.25c.
Hoops	5.00c.
Bands	4.25c.
Black sheets (28 gage)	5.50c.
Blue annealed (10 gage)	4.50c.
Galvanized sheets (28 gage)	6.50c.
Bolts, carriage	40 per cent off list
Bolts, machine	45 per cent off list

while foreign foundry iron is offered here at about $22, all charges prepaid.

Shapes.—Considerable new work is in sight. The new Orpheum Theater to be built near Times Square, for which plans are now being made, will take about 1200 tons; the new Famous Players moving picture theater will require about 1000 tons, and a stadium at Portland, Ore., 800 tons. Structural shops report a fair run of work, consisting mostly of small jobs. Eastern mills are quoting plain material at 2.30c. to 2.35c., delivered Seattle.

Plates.—The market has settled down to 2.25c., c.i.f. Seattle, but very little tonnage is being placed. The largest job in sight is about 1200 tons for new water lines at Tacoma, Wash., on which bids will soon be asked. This will be a steel line, as sizes called for are too large to be cast in iron. A prospective Seattle water line is in sight, but it will be some time before bids are asked.

Sheets.—Two or three independent Eastern mills are said to be in need of orders and are naming lower prices to get them. No. 28 black sheets are quoted by several Eastern mills at 3.88c., No. 10 blue annealed at 3.02½c., and No. 28 galvanized at 5.03½c., all these prices being delivered Seattle.

Steel Rails.—The city of Seattle has placed about 600 tons of girder rails with an Eastern mill.

Tin Plate.—A Seattle exporter has placed 500 to 600 base boxes with an Eastern maker for shipment to China.

Wire Products.—New demand is light. Wire nails are quoted by the California maker at $3.25 base, per keg, delivered Seattle, in carload lots.

Imports.—A considerable tonnage of Belgian steel bars was recently received by a Portland, Ore., interest that has been a consistent importer of bars and sheets for some time.

Buffalo

Pig Iron Declines $1 a Ton—Recessions in Scrap—Concrete Bars Active

BUFFALO, May 25.—Effective yesterday, local pig iron producers reduced foundry and malleable iron to $20, base, local furnace. The usual differentials for silicon have been retained, making the price on No. 2X foundry iron $20.50 and that on No. 1X foundry $21.50. Basic iron remains at $20, furnace. There has been a pronounced dearth of orders and inquiries in the market. Shipments, however, are in fair volume.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

No. 2 plain fdy., sil. 1.75 to 2.25	$20.00
No. 2X foundry, sil. 2.25 to 2.75	20.50
No. 1X foundry, sil. 2.75 to 3.25	21.50
Malleable, sil. up to 2.25	20.00
Basic	20.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Bars are firm at 2.265c., Buffalo, and plates and shapes are fairly steady at 2.165c. Business in sheets has slackened somewhat, but prices are reasonably firm. Reinforcing bar demand has improved. The F. N. Burt Co., Buffalo, has placed 450 tons for a factory addition with a local maker. A mill for the Federal Concrete Co., Buffalo, will require both structural and reinforcing steel. In reinforcing the foundation will require 200 tons and the superstructure 300 tons. The general contract for a municipal pier in this city, requiring 3600 tons of sheet piling and 200 tons of reinforcing steel, will be let this week. This job also calls for about 200 tons of tie rods, turnbuckles, etc. The general contract for a Rochester, N. Y., garage has been let and the reinforcing steel, amounting to 200 tons, will be awarded soon.

Old Material.—The market for selected No. 1 heavy melting steel has weakened to $15.75 to $16, and some of the other grades are not quite so strong. Practically no purchasing by consumers has taken place during the week, and activity is confined to trading among dealers. Efforts are being made to fill the heavy orders of three weeks ago, but there has been a decline in the production of scrap, particularly turnings and borings. Stove plate also is not coming out freely and there is a fair demand for it.

We quote prices per gross ton, f.o.b. Buffalo, as follows:

Heavy melting steel	$14.50 to $15.00
Selected No. 1 heavy melting steel	15.75 to 16.00
Low phosphorus	17.50 to 18.00
No. 1 railroad wrought	14.00 to 14.50
Car wheels	17.00 to 17.50
Machine shop turnings	9.50 to 10.50
Mixed borings and turnings	11.75 to 12.25
Cast iron borings	11.75 to 12.25
No. 1 busheling	14.75 to 15.00
Stove plate	14.00 to 14.50
Grate bars	13.00 to 13.50
Hand-bundled sheets	10.00 to 10.50
Hydraulic compressed	14.75 to 15.00
No. 1 machinery cast	16.25 to 16.50
Railroad malleable	16.50 to 17.00
Iron axles	24.00 to 25.00
Steel axles	16.00 to 16.50

Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes	3.40c.
Mild steel bars	3.30c.
Cold-finished shapes	4.45c.
Rounds	3.95c.
No. 28 black sheets	4.60c.
No. 10 blue annealed sheets	3.90c.
No. 28 galvanized sheets	5.75c.
Common wire nails, base per keg	$3.90
Black wire, base per 100 lb	3.90

CASTING OUTPUT HIGHER

Bookings of Commercial Steel Castings 20 Per Cent Ahead of Last Year

WASHINGTON, May 25.—April bookings of commercial steel castings amounted to 85,990 tons, or 65 per cent of capacity, according to reports received by the Department of Commerce from principal manufacturers having a present monthly capacity of 131,300 tons. This was the lowest total of bookings since November, but it exceeded every month in 1925 except January and December. Bookings in March were at the rate of 80 per cent of capacity. Of the April bookings, 23,564 tons was for railroad specialties, representing 40 per cent of this class of capacity. Bookings for miscellaneous purposes amounted to 62,426 tons, or 87 per cent of this class of capacity.

Production in April totaled 105,188 tons, against 108,348 tons in March, the April output being 80 per cent of capacity. Of this production, 35,381 tons was for railroad specialties, representing 60 per cent of this class of capacity, and 69,807 tons was for miscellaneous purposes, representing 97 per cent of this class of capacity.

For four months, bookings are 20 per cent ahead of last year, being 390,490 tons against 325,295 tons. Most of the gain was in miscellaneous castings, which advanced 27 per cent, from 180,608 tons to 229,626 tons. Railroad specialties gained 11 per cent, from 144,687 tons to 160,864 tons.

Heavy Fabricated Plate Tonnage

WASHINGTON, May 25.—Bookings of fabricated steel plate in April totaled 32,736 tons, or 48 per cent of capacity, according to reports received by the Department of Commerce from 36 firms. Operations in March were at the rate of 44 per cent and in April, 1925, they were at the rate of 33 per cent. Of the April bookings, 6042 tons was for oil storage tanks; 1533 tons for refinery materials and equipment; 951 tons for tank cars; 5261 tons for gas holders; 1857 tons for blast furnaces and 17,092 tons for stacks and miscellaneous purposes.

April showed the highest monthly total of bookings since last June and, with that one exception, the highest since December, 1924. In both those earlier months oil storage tanks accounted for all of their excess over the current total. For other than oil storage tanks, the April tonnage was much the largest in more than two years.

NON-FERROUS METAL MARKETS

The Week's Prices

Cents per Pound for Early Delivery

	May 19	May 20	May 21	May 22	May 24	May 25
Lake copper, New York	14.00	14.00	14.00	14.00	14.00	14.00
Electrolytic copper, N. Y.*	13.62½	13.60	13.55	13.55	13.60	13.57½
Straits, tin, spot, New York	61.25	60.62½	60.62½	....	60.50	61.00
Lead, New York	7.75	7.75	7.65	7.65	7.65	7.65
Lead, St. Louis	7.50	7.50	7.40	7.40	7.40	7.40
Zinc, New York	7.22½	7.20	7.22½	7.20	7.20	7.20
Zinc, St. Louis	6.87½	6.85	6.87½	6.85	6.85	6.85

*Refinery quotation; delivered price ¼c. higher.

NEW YORK, May 25.—There is almost no activity in any of the markets, but prices are fairly stable. Consumers of copper and zinc have made only a few purchases in the past week, but there was moderate buying of tin and lead, mostly by operators, however.

Copper.—The past week has been one of the quietest in some time. Consumers appear to be well covered after the heavy buying of two weeks ago. While most producers are still asking 13.87½c., delivered, it is found that the light demand which appears from day to day can be satisfied by a few sellers at anywhere from 13.80c. to 13.87½c., mostly at near the lower figure. Thus far this week the Whitsuntide holidays in England have still further slowed up the market. Lake copper is quoted at 14c., delivered.

Tin.—Sales for the week have been about 750 tons, taken almost entirely by dealers. Metal for July and August delivery continues firm, but spot delivery as well as that for May and June has been declining quite rapidly, due partly to the light demand for spot metal and to the appearance of lots which have been held back. In general, dealers have been selling spot metal and buying futures. A feature of the market has been the comparatively small sales at Singapore, most of the buying, even by London dealers, being done in the New York market which is still the cheapest. Spot Straits tin is quoted today at 61c., New York, in a very quiet market. Prices in London today opened practically unchanged after the holiday at £268 15s. for spot standard, £268 5s. for future standard and £277 15s. for spot Straits. The Singapore quotation today was £270. Arrivals thus far this month have been 5950 tons with 4250 tons reported afloat.

Lead.—The leading interest reduced its contract price on May 21 from 7.75c. to 7.65c., New York. Otherwise the market is without feature. As stated last week, the independent producers are pretty well sold up for May and June shipments and are making few offerings. The moderate business which is being done is understood as being taken largely by the leading interest. Quotations at St. Louis are 7.40c. to 7.45c. for early delivery.

Zinc.—Prices for prime Western zinc are largely nominal at 6.85c., St. Louis. Producers, because of the small profits at present ore prices, are exerting very little pressure and there is not much buying interest from consumers.

Nickel.—Wholesale lots of shot and ingot nickel are quoted unchanged at 36c. for the former and 35c. for the latter, with electrolytic nickel at 39c. per lb.

Antimony.—The offerings of Chinese metal have largely increased and prices are decidedly lower with spot and future delivery quoted at 9.50c., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is obtainable as ingots at 27c. to 28c. per lb., delivered.

CHICAGO, May 25.—The prices of Lake copper and zinc are unchanged. The spot market for tin has eased off and antimony is 2c. lower than last week's quotation because of a light demand, substantial stocks and the arrival of heavy shipments. Offerings of old metals are in large volume and users are taking only small

Metals from New York Warehouse

Delivered Prices per Lb.

Tin, Straits pig	62.50c. to 62.75c.
Tin bar	66.00c. to 66.50c.
Copper, Lake	15.25c.
Copper, electrolytic	15.00c.
Copper, casting	14.75c.
Zinc, slab	7.75c. to 8.25c.
Lead, American pig	8.50c. to 9.00c.
Lead, bar	11.00c. to 12.00c.
Antimony, Asiatic	13.00c. to 14.00c.
Aluminum, No. 1 ingot for remelting (guaranteed over 99 per cent pure)	30.00c. to 30.50c.
Babbitt metal, commercial grade	30.00c. to 35.00c.
Solder, ½ and ½ guaranteed	41.00c.

Metals from Cleveland Warehouse

Delivered Prices per Lb.

Tin, Straits pig	66.50c.
Tin, bar	69.50c.
Copper, Lake	15.00c.
Copper, electrolytic	15.00c.
Copper, casting	14.00c.
Zinc, slab	8.50c.
Lead, American pig	8.50c. to 9.00c.
Antimony, Asiatic	18.50c.
Lead, bar	11.00c.
Babbitt metal, medium grade	21.50c.
Babbitt metal, high grade	70.50c.
Solder, 50-50	39.75c.

Rolled Metals from New York or Cleveland Warehouse

Delivered Prices, Base per Lb.

Sheets—	
High brass	18⅞c. to 19⅞c.
Copper, hot rolled	22½c. to 23½c.
Copper, cold rolled, 14 oz. and heavier	24¾c. to 25¾c.
Seamless Tubes—	
Brass	23½c. to 24½c.
Copper	24¼c. to 25¼c.
Brazed Brass Tubes	26⅞c. to 27⅞c.
Brass Rods	16⅝c. to 17⅝c.

From New York Warehouse

Delivered Prices, Base per Lb.

Zinc sheets (No. 9), casks	12.75c.
Zinc sheets, open	13.25c.

Non-Ferrous Rolled Products

Mill prices in brass, bronze and copper products are unchanged. Zinc and lead sheets were reduced about May 1, zinc sheets ½c. per lb. to 11.25c. and lead full sheets ¼c. to 11.50c. No changes have been made since.

List Prices Per Lb. f.o.b. Mill

On Copper and Brass Products, Freight Up to 75c. Per 100 Lb. Allowed on Shipments of 500 Lb. or Over.

Sheets—	
High brass	18.87½c.
Copper, hot rolled	22.50c.
Zinc	11.25c.
Lead (full sheets)	11.50c.
Seamless Tubes—	
High brass	23.50c.
Copper	24.25c.
Rods—	
High brass	16.62½c.
Naval brass	19.37½c.
Wire—	
Copper	15.75c.
High brass	19.37½c.
Copper in Rolls	21.37½c.
Brazed Brass Tubing	26.87½c.

Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of the Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide	37.50c.
Tubes, base	48.00c.
Machine rods	34.00c.

Rolled Metals, f.o.b. Chicago Warehouse

Sheets—	Base per Lb.
High brass	18⅞c. to 19⅞c.
Copper, hot rolled	22½c.
Copper, cold rolled, 14 oz. and heavier	24¾c.
Zinc	12.00c.
Lead, wide	11.08c.
Seamless Tubes—	
Brass	23½c. to 25c.
Copper	24¼c. to 25¾c.
Brazed Brass Tubes	26⅞c. to 29½c.
Brass Rods	16⅝c.

lots of the various grades. Prices of old metals are weak. We quote, in carload lots, Lake copper, 14.12½c.; tin, 62.50c.; lead, 7.55c.; zinc, 6.90c.; in less than carload lots, antimony, 14.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10.50c.; copper bottoms, 9.50c.; red brass, 9.25c.; yellow brass, 8c.; lead pipe, 6.75c.; zinc, 5c.; pewter, No. 1, 36c.; tin foil, 43.50c. block tin, 52c.; aluminum, 18c.; all being dealers' prices for less than carload lots.

To Decentralize Work in Connection with Mobilizing Industry

WASHINGTON, May 25.—Addressing the opening session of the convention of Quartermaster Reserves here on Thursday of last week, Secretary of War Davis said that the task of carrying out the instructions of Congress, to make plans for a complete and immediate mobilization, involves an almost unbelievable amount of labor. He declared, however, that it can be accomplished by decentralization of the load, with control and supervision only in Washington. It was pointed out by the Secretary that everything that the department can foresee, that will enable industry to absorb readily the war-time load, is being studied and planned now, so that a minimum of reorganization or disruption will be necessary on the outbreak of an emergency.

Heavier Bookings of Steel Furniture and Shelving

WASHINGTON, May 25.—Orders for steel furniture received in "business group" in April were valued at $2,356,403, shipments were valued at $2,323,447 and unfilled orders at $1,576,103, according to the Department of Commerce. Orders in March were $2,289,276. In the shelving group April orders were valued at $704,432, shipments at $699,370 and unfilled orders at $570,693. Orders in March were $583,701.

For four months the figures are running well ahead of last year. Orders in the business group were $9,570,442, against $8,170,384; shipments, $9,329,486, against $7,948,296. In shelving, orders were $2,526,516, against $2,234,751; shipments, $2,607,445, against $2,151,618.

Conference on J. & L. Scale Rates Fails to Bring Agreement

WASHINGTON, May 25.—A conference held last Wednesday before Commissioner Campbell of the Interstate Commerce Commission concerning iron and steel rates into Chicago, based on the Jones & Laughlin mileage scale, failed to result in an agreement. The conference was called to discuss the Illinois Freight Association territory rates that were suspended by reason of complaints that discrimination against shippers from outside the Chicago district would result from the fact that rates within the territory and from Gary, Ind., to the district, were not revised in harmony with the remaining rates. The purpose of the conference was to determine whether such readjustments of rates could be brought about as would enable the suspension to be vacated without hearing and formal action.

The Jones & Laughlin scale as it relates to Central Freight Association territory was ordered to become effective May 29. The particular complaints in the Illinois Freight Association situation were made by shippers in Chicago Heights. The new scale provides a rate of 8c. per 100 lb. from Chicago Heights, while the rate from Gary was left unchanged. It is reported that the situation may be solved by merely suspending the Chicago Heights and Gary rates and letting all other rates in Illinois Freight Association territory become effective.

Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators, and the selling prices are those charged consumers after the metal has been promptly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	11.75c.	13.25c.
Copper, heavy and wire	11.50c.	12.50c.
Copper, light and bottoms	9.50c.	10.75c.
Brass, heavy	7.25c.	9.00c.
Brass, light	6.25c.	7.75c.
Heavy machine composition	8.75c.	10.00c.
No. 1 yellow brass turnings	8.25c.	9.00c.
No. 1 red brass or composition turnings	8.00c.	9.00c.
Lead, heavy	6.50c.	7.00c.
Lead, tea	5.00c.	6.00c.
Zinc	4.00c.	4.75c.
Sheet aluminum	17.50c.	19.50c.
Cast aluminum	17.50c.	19.50c.

Asks Bids for Plates

WASHINGTON, May 25.—The Bureau of Supplies and Accounts, Navy Department, is asking for bids, to be opened on June 4, for approximately 518 tons of medium black steel plates for use as blister shell and floor plates for the battleship New York.

J. & L. Mileage Scale Rates Ordered Into Effect May 29

WASHINGTON, May 25.—The Jones & Laughlin mileage scale of rates on iron and steel products will be put into effect on May 29. That the order of the Interstate Commerce Commission will stand unchanged despite many protests from steel producers in Pittsburgh and surrounding territories was made evident this afternoon when the commission announced that suspended rates in Illinois Freight Association territory will be put into effect on May 29, the same date as for rates in Central Freight Association territory.

The order of today vacates a previous order suspending until Aug. 23 and 29 all Illinois Freight Association rates under the scale, with exceptions as to rates into the Chicago switching district from Chicago Heights and South Chicago, Ill., and Gary, Ind. These latter rates remain suspended. Meanwhile the old rates from these points into Chicago continue in effect. Protests were made by shippers in Chicago Heights because the proposed rates into Chicago from that point had been greatly increased, while proposed rates from Gary were not changed and were lower than from Chicago Heights.

Canadian Tariff Board Hears Complaints of Steel Companies

TORONTO, ONT., May 24.—The Advisory Tariff Board appointed by the Dominion Government about six weeks ago, and referred to in THE IRON AGE of April 22, is now functioning. Of several appeals now before the board, on tariff and taxation, the first to be considered will be that originating from two Canadian steel companies—the Algoma Steel Corporation, Sault Ste. Marie, Ont., and the British Empire Steel Corporation, Sydney, N. S. These applications will be taken up by the board on May 26, at Ottawa. The applications from these two companies are based on the incidence of tariff on various phases of the Canadian steel industry, with special reference to drawbacks, unequal production costs, depreciated currency and several other factors.

PERSONAL

Royal Mattison, vice-president and general manager Asbestos Shingle, Slate & Sheathing Co., Ambler, Pa., has been traveling through the West looking for an advantageous site for a Western factory for his company.

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Fuller F. Barnes, formerly treasurer and general manager Wallace Barnes Co., Bristol, Conn., manufacturer of springs, has been elected president of the company to succeed his father, Carlyle F. Barnes, who died recently. Harry C. Barnes, formerly secretary, was elected treasurer, and John S. Barnes was appointed secretary. Other officers were elected as follows: Assistant treasurer and comptroller, Dwight C. Buffman; general manager, J. Ernest Andrews; plant manager, Raymond W. Cook. Directors of the company are the above officers and Lucius C. Ives, Brown Joyce, Lisle K. Lasher, William Muir, Harold B. Reid and Frank B. Tibbitts.

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Charles B. Officer, hitherto assistant to the president on engineering matters, has been appointed chief engineer of the Sullivan Machinery Co., Chicago, in charge of engineering matters with regard to new machinery or changes in existing designs. Mr. Officer is a graduate of Yale University, and has been connected with the Sullivan company ever since his graduation.

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F. F. Harter has been appointed branch manager Crucible Steel Co. of America, with headquarters at its office and warehouse, 1224 Callowhill Street, Philadelphia.

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Frank A. Hall has accepted a position with the Dempsey furnace division of the W. N. Best Corporation, 11 Broadway, New York. He was formerly in the New York office of the Republic Flow Meters Co.

Changes in Pittsburgh Steel Co.

A reorganization of the sales department of the Pittsburgh Steel Co., of which there have been persistent intimations for some time, has been announced by Homer D. Williams, president of the company under date of May 24. Richard R. Harris, general manager of sales of the Pittsburgh Steel Products Co., becomes general manager of sales of the Pittsburgh Steel Co. and its subsidiary companies, the Pittsburgh Steel Products Co. and the National Steel Fabric Co. Each of the component companies will have a manager of sales. George W. Jones, who has been advanced to the position of manager of sales will have charge of sales of semi-finished steel, hoops, bands, strips and wire products. Charles F. Palmer, who has been manager of the Chicago office of the Pittsburgh Steel Products Co., has been appointed manager of sales of that company with headquarters in Pittsburgh and will supervise sales of seamless steel tubular goods, including boiler tubes, oil country tubular goods and tubes for mechanical purposes. Edward L. Benedict, manager of sales National Steel Fabric Co., remains in that position.

Mr. Harris was born in Canada and received his formal education at Collegiate Institute, Brantford, Ont., and the Canada Business College, Hamilton. His first connection with the steel industry was in 1896, when he entered the employ of the New Castle Tube Co., New Castle, Pa., manufacturer of bicycle tubing. When that company was acquired by the Shelby Steel Tube Co., in 1898, he remained with the latter company as a salesman. In 1901 the Shelby Tube Co. was acquired by the National Tube Co. and Mr. Harris was one of the three salesmen of the Shelby company who were retained. In December, 1906, he severed that connection to become manager of sales of the Seamless Tube Co. of America, the name of which was changed to Pittsburgh Steel Products Co. in 1909.

George W. Jones, new manager of sales of the Pittsburgh Steel Co., succeeds John F. Hazen, who has resigned. He has been affiliated with the company since the latter part of 1908. He represented the company in New York State for two years, selling

R. R. HARRIS

G. W. JONES

fence to the retail trade. Then for a period of three years he was stationed in Pittsburgh as assistant manager of the fence department. During the next five years he was assistant manager of the New York office of the company, serving for ten months as manager of a Washington office the company maintained during the war period. He was Chicago district sales manager from June 1, 1919 until April 15, 1923 when he was appointed assistant general manager of sales with headquarters in Pittsburgh. He was born in Wales, but was reared in northeastern Pennsylvania, where his parents located when he was a boy.

Obituary

FRANCIS BOYLSTON AUSTIN, long associated with the iron and steel industry of Boston, died suddenly of heart trouble in Boston on May 20. He was born in Charlestown, now Boston, July 24, 1864. On leaving Harvard University, he entered his father's business, Austin & Doten, of which he was senior partner for many years. Last year the company was dissolved and a new one, the Austin, Hastings Co., was formed, with which his son, William M. Austin, is associated.

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EDWARD SIDNEY MOWRY, general manager Wilcox-Crittendon Mfg. Co., Middletown, Conn., died at his home in that city on May 16 at the age of 55. He was associated with the firm for approximately 40 years.

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GEORGE L. HAMILTON, managing director Davis & Furber Machine Co., North Andover, Mass., died at his home in that town on May 16. He was born in Vasselboro, Me., 62 years ago, but spent practically his whole life in North Andover.

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PAUL B. HUSTON, for several years advertising manager and head of the cost department of the Cleveland Automatic Machine Co., died suddenly May 24. He was born in Lisbon, Ohio, about 45 years ago.

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HAROLD S. MOORE, for the last 12 years district sales manager in Philadelphia for the Central Iron & Steel Co., Harrisburg, Pa., died May 23 at his home in Philadelphia, following a long illness. Mr. Moore had been selling plates for the Central Iron & Steel Co. for 18 years. During the first six years of that period he was connected with Charles K. Barnes & Co., who were selling agents when the Central company opened its own Philadelphia office. Mr. Moore was appointed district sales manager. He served one term as president of the Steel Club of Philadelphia, an organization of steel company district sales managers. He was 46 years old.

FABRICATED STEEL

Awards of 46,000 Tons Include 6000 Tons for Office Building—New Business Increases to 11,500 Tons

The past week with total awards of more than 46,000 tons of fabricated steel, including some tank work, was the best week of the current month and the third largest of the year. About 10,500 tons of this total was provided by building construction in New York and Brooklyn. The largest single award reported was 6000 tons for an office building in Chicago. In Detroit, 4500 tons was closed for a gas holder and in Los Angeles 4340 tons for tank work. New projects reported call for about 11,500 tons. Dock improvements in Buffalo, in addition to 500 tons of fabricated material, involve about 3500 tons of sheet steel piling.

BOSTON, 275 tons, Motor Mart, to New England Structural Steel Co.

READVILLE, MASS., 380 tons, sand blast house, New York, New Haven & Hartford Railroad, to New England Structural Steel Co.

NEW YORK, 9565 tons, in the following contracts awarded to members of the Structural Steel Board of Trade of New York: To Shoemaker Bridge Co., a residence at 900 Fifth Avenue and a New York Edison Co. substation annex on East Sixth Street; to George A. Just Co., apartment building at Brighton Beach, Brooklyn, apartment building at 37-41 West Eighty-sixth Street, office building at 234-236 West Forty-fourth Street, St. John's Hospital in Brooklyn, bank building on Livingston Street, Brooklyn; to Levering & Garrigues Co., a loft building at 50-58 West Thirty-seventh Street, loft building at 39-43 West Thirty-seventh Street, also one at 50 West Thirty-ninth Street, and column cores for a concrete warehouse at Varick and Houston Streets; to Hedden Iron Construction Co., alterations to building at 258 Fifth Avenue, a loft building at 313-315 West Thirty-fifth Street, addition to building at 2 Rector Street, New York Edison Co. substation at 33 Gold Street; to Post & McCord, News Syndicate Building, 692 Pacific Street, Brooklyn; to Taylor-Fichter Steel Construction Co., Three Arts Club at 340 West Eighty-fifth Street, and a garage at Eleventh Avenue and Fifty-eighth Street; to Lehigh Structural Steel Co., office building at 142-144 Joralemon Street, Brooklyn.

NEW YORK, 200 tons, parochial school for St. Ann's Church, East 110th Street, to National Bridge Works.

NEW YORK, 600 tons, apartment building at West End Avenue and Ninety-eighth Street, to Easton Structural Steel Co.

BROOKLYN, 165 tons, lecture hall and cafeteria at Pratt Institute, to Buckingham Steel Co.

GLEN COVE, L. I., 1100 tons, hospital, to Owego Bridge Co.

RYE, N. Y., 900 tons, store and garage, to Universal Iron Works, Inc.

NEW YORK CENTRAL, 1700 tons, bridges near Schenectady, N. Y., to American Bridge Co.

NEW YORK CENTRAL, 400 tons, two bridges near Albany, N. Y., to an unnamed fabricator.

HADDONFIELD, N. J., 300 tons, high school building, to American Bridge Co.

PHILADELPHIA, 1200 tons, plant addition for Edward G. Budd Mfg. Co., to Belmont Iron Works.

BALTIMORE, 600 tons, theater, to American Bridge Co.

WASHINGTON, 450 tons, Department of Agriculture, Bureau of Roads, bridges in California, Idaho, Montana and Arizona, to Vincennes Bridge Co., Vincennes, Ind.

HAGERSTOWN, MD., 100 tons, building for Manbeck Bread Co., to Jones & Laughlin Steel Corporation.

PITTSBURGH, 110 tons, Nurses' Home, St. John's Hospital, to Jones & Laughlin Steel Corporation.

AMBRIDGE, WOODLAWN, PA., 2300 tons, Beaver County Bridge over Ohio River, to American Bridge Co.

SEWICKLEY, PA., 160 tons, garage for Bower Automobile Co., to Jones & Laughlin Steel Corporation.

KNOXVILLE, TENN., 300 tons, car repair shop for Southern Railway, to unnamed fabricator.

DETROIT, 1580 tons, Wabash Railway bridge, to American Bridge Co.

DETROIT, 1300 tons, Eagle Avenue grade crossing elimination to McClintic-Marshall Co.

DETROIT, 4500 tons, gas holder, to Bartlett Hayward Co.

AKRON, OHIO, 200 tons, County bridge to unnamed fabricator.

GARY, IND., 500 tons, Gary Heat, Light & Water Co., warehouse, to American Bridge Co.

CHICAGO & NORTH WESTERN, 1900 tons, bridges, to American Bridge Co.

CHICAGO, 6000 tons, builders' office building, to American Bridge Co.

CHICAGO, 600 tons, North Side sewage treatment works, to American Bridge Co.

DECATUR, ILL., 1700 tons, Wabash Railway bridge, to American Bridge Co.

PEORIA, ILL., 500 tons, gas holder to unnamed builder.

LOS ANGELES, 4340 tons, Union Oil Co. tank work, divided as follows: 6 80,000-bbl. tanks, 1860 tons, to Western Pipe & Steel Co.; 5 80,000-bbl. tanks, 1550 tons, to Chicago Bridge & Iron Works; 3 80,000-bbl. tanks, 930 tons, to Lacy Mfg. Co.

LOS ANGELES, 600 tons, Associated Oil Co., two barges, to Los Angeles Shipbuilding Co., and Bethlehem Shipbuilding Co.

SAN BERNARDINO, CAL., 125 tons, Southern Sierras Power Co., power station, to Union Iron Works.

SAN FRANCISCO, 650 tons, Commercial Union Building addition, to Pacific Rolling Mill Co., Inc.

SAN FRANCISCO, 190 tons, apartment house, Franklin and Sutter Streets, to Golden Gate Iron Works.

BERKELEY, CAL., 100 tons, Cragmont School, to Steel Construction Co., San Francisco.

PORTLAND, ORE., 600 tons, Multnomah Stadium, University of Oregon, to Poole & McGonigle, Portland.

EUGENE, ORE., 100 tons, basket ball pavilion, for University of Oregon, to Poole & McGonigle.

HOOD RIVER, ORE., 150 tons, cold storage plant, to Isaacson Iron Works, Seattle, Wash.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

HOLYOKE, MASS., 300 tons, bank building.

BUFFALO, 500 tons, initial requirements for dock improvements, Mark Engineering Co., low bidder; also 3500 tons sheet piling.

PHILADELPHIA, 1500 tons, gymnasium for University of Pennsylvania.

GERMANTOWN, PA., 600 tons, office building.

PENNSYLVANIA RAILROAD, 2500 tons, several bridges.

DOWNINGTOWN, PA., 500 tons, plant addition for Downingtown Paper Co.

NORFOLK & WESTERN RAILROAD, 200 tons, bridge.

MIAMI, FLA., 1100 tons, building for Miami Athletic Club.

DALLAS, TEX., 1000 tons, Dallas National Bank, office building.

CLEVELAND, 500 tons, three schools for Cleveland Board of Education.

CLEVELAND, 500 tons, Walnut Realty Co., theater and store.

CLEVELAND, 100 tons, two branch buildings for Library Board.

KANSAS CITY, MO., 800 tons, Loew's State Theater; Thomas W. Lamb, New York, architect.

SAN FRANCISCO, 400 tons, apartment house, California and Jones Streets.

SAN FRANCISCO, 350 tons, Orpheum Theater, Mission District.

SELBY, CAL., 260 tons, American Smelting & Refining Co., for roaster and treater; bids in.

GRASS VALLEY, CAL., 200 to 300 tons, Nevada County Irrigation District, pipe line; bids May 29.

MOUNT SHASTA, CAL., 300 tons, Pacific Gas & Electric Co.; bids being taken.

Structural Steel Sales Increase

Bookings reported to the Department of Commerce, covering April, show 183,134 tons of fabricated structural steel from 177 firms, with a capacity of 258,280 tons, as reported last week. Bookings represent 71 per cent of monthly capacity. The computed tonnage for 204 identical firms is given as 216,550 tons. This is the largest figure since December, exceeding the March total by 4½ per cent. It is lower, however, than the 231,800 tons of April, 1925.

For the first four months, bookings are estimated to have aggregated 786,900 tons, compared with 793,000 tons last year and with 823,330 tons in the first four months of 1924. Shipments, on the other hand, have been heavier this year, the total for four months being computed at 893,650 tons, against 817,400 tons last year and 761,800 tons the year before.

Steel Treaters Expand Activities

(*Continued from page* 1499)

in a paper entitled "Recrystallization Temperatures of Cold-Rolled Electrolytic Iron and Open-Hearth Steel Strip" by John R. Freeman, Jr., Bureau of Standards, Washington. In the absence of the author, the paper was presented in abstract by Henry S. Rawdon, also of the Bureau.

The stamping and drawing of iron and low-carbon steel sheet into various, and sometimes rather complicated shapes, play an important part in present day metal manufacturing operations, says the author. Low-carbon steel, or open-hearth iron sheets are usually employed commercially for this purpose. Electrolytic iron sheet has recently been advocated as a suitable material for such operations. A preliminary annealing of the sheet, prior to stamping or drawing, is necessary and often intermediate annealing between different stages in the drawing in order to remove the work hardness and enable the sheet to withstand the deformation of subsequent stages which must be resorted to.

A study has recently been carried out by the Bureau of Standards of the recrystallization temperature of cold-rolled electrolytic iron and cold-rolled open-hearth steel strip. The mechanical properties of the cold-rolled materials, after annealing at various temperature intervals up to 1290 deg. Fahr., were determined and the microstructural changes were studied. The results showed that the electrolytic iron sheet of the composition used was noticeably lower in its recrystallization temperature than the open-hearth steel sheet. A marked recrystallization was noted in severely cold-rolled electrolytic iron sheet after it had been annealed ½ hr. at 930 deg. Fahr. together with pronounced softening of the work-hardened sheet, whereas a similar change in the open-hearth steel sheet was not noted until after it had been annealed at 1110 deg. Fahr. for ½ hr. This difference in the recrystallization temperatures of the two materials of 180 deg. Fahr. may prove to be a factor of considerable importance in prompting the use of electrolytic iron sheet.

Discussion

In further explanation of the paper, Mr. Rawdon stated that the principal difference in the composition of the two materials was that the steel had a manganese content of 0.39 per cent, while the electrolytic iron contained only 0.01 per cent manganese. In response to a question as to whether this difference in manganese was not an important factor in the comparisons, Mr. Rawdon replied that the manganese in the steel is in solution in the ferrite, but that even then it might be an important factor in influencing the results. It was also stated that this paper was a continuation of the Bureau of Standards report No. 288 which discussed and compared the mechanical properties of these two materials.

Machinability of Alloy Steels

"Factors Affecting the Machinability of Alloy Steels" was the title of a paper by J. S. Vanick and T. H. Wickenden, of the International Nickel Co., New York. It was a report of an extensive investigation on this subject, having to do principally with the smooth finish machining of low-carbon, plain and alloy steels. Machining tests were made upon such steels suitable for carburizing to determine the requirements for obtaining smooth surfaces. In order that the finishing cuts might be correlated with the vast amount of data available upon roughing cuts and breakdown tests of tools, a ¼-in. wide round nose tool shaped to the 14 deg. side slope, 8 deg. back slope, 6 deg. clearance angles recommended in Taylor's original work, was used for a series of cuts ranging from 0.015 in. to 0.090 in. in depth and 0.015 to 0.060 in. in feed.

The circular disk method of varying the speed was used by starting the tool on its cut at the periphery of a 10-in. diameter disc moving at a fixed r.p.m. and thereby obtaining a speed variation from surface to center of the face. By this method the finish on the disk would change from a smooth to rough finish at certain critical speeds, the change being complete with a cutting speed change of 10 to 15 ft. per min. In general, at a still lower speed, the finish would again change from rough to smooth. It was found that this critical area of rough finish and its corresponding cutting speed would vary with the depth of cut, the feed, the hardness of the material and the cutting angle.

A practical indication of the proper speed for a good high-speed finish occurred in the appearance of a hot temper-colored chip. The speeds required to obtain a good finish are considerably lower than the breakdown speeds derived from Taylor's work, with fine feeds and depths on medium hard steel. Fine feeds left better surfaces than coarse feeds, and where the removal of metal was important deep cuts with fine feeds would be preferred to shallow cuts with coarse feeds.

The data has a practical application in that, if a rough finish is being secured, it is evident that the cutting is being done in the critical area and can be corrected in several ways:

1. With the same tool conditions, by either lowering, or preferably increasing the speed until outside of the critical area.
2. With the same speed and tool, change the depth of cut and feed relation.
3. Heat treating the material to a higher hardness will result in lowering the speed position of the critical area so that the same cutting speed will then be outside the poor finish range. Softening the material will increase the speed position of the critical area so that the selected cutting speed will come in the slow speed, good finish range.
4. Change the cutting angle of the tool. A sharper tool will decrease the speed position of the critical area.

New Policies, the Banquet, and Next Conventions

IT is the custom of the board of directors to hold a meeting at each sectional gathering of the society on the day previous to the convention. This year at Hartford the entire board was present and some important business was transacted.

More Activity in Non-Ferrous Field

The most important decision, which was announced by President Bird at the banquet, was the passing of a resolution that the society hereafter shall increase its activities in the non-ferrous field. It is stated that for some time the organization has published data sheets on non-ferrous subjects and has also had on its program some papers in this field. The chapters also have been addressed from time to time by specialists in the non-ferrous field. During the past year President Bird has visited every chapter of the society and has found that a large majority have favored the decision just made by the board of directors. The manner in which this policy is to be carried out has been gone over with representatives of the Institute of Metals and these have assured the A. S. S. T. of their cooperation.

Organization of Groups

Another important step was a resolution passed by the board authorizing the organization of groups as distinct from chapters. These are to be fostered in certain localities where conditions do not warrant the establishment of a full chapter, but the groups are to be organized very much after the pattern of the chapters but will have no voice in the national nominating committees. As a result of this policy the board approved the granting of charters for a group at Fort Wayne, Ind., and another at Montreal, Canada.

A new departure also was the authorization by the board of the formation of what are to be known as student groups, which are to be affiliated with chapters and to be under their direction. The first group, already organized, is one at the Case School of Applied Science at Cleveland, which is to be under the direction of the Cleveland chapter and for which this chapter will arrange four technical meetings during the year.

It was decided by resolution, that hereafter the national officers of the society shall so organize as to have complete charge of all national conventions and full responsibility for the arrangements. This will relieve the local chapter of any responsibility except one of a consulting nature.

Convention at Detroit in 1927

The location of the next two national conventions was thoroughly discussed. Some time ago it was announced in these columns that the 1927 convention would be held in Philadelphia, under the auspices of the Philadelphia chapter, which had conducted an active campaign for this purpose. It develops, however, that the American Foundrymen's Association has also considered Philadelphia as a location for its convention and exhibition in 1927 and, because this organization felt that it had a prior claim on the Commercial Museum of that city, it was decided by the board of directors that it would be unwise to hold two conventions and exhibitions in the same city at dates fairly close together. In view of these conditions the board decided to hold its 1927 convention in Detroit, the exhibition to be located at Convention Hall, which is located about half way between the General Motors Building and the center of the city and where 166,000 sq. ft. of space will be available. It was the unanimous opinion of the board that the 1928 convention be held in Philadelphia.

The Chicago Convention

The committee on the coming convention in Chicago, the week of Sept. 20, consisting of Messrs. Harper, Guthrie and Eisenmann, reported to the board that, of the 80,000 sq. ft. of space for the exhibition, 40,000 sq. ft. had already been sold to machine tool exhibitors and that all but 15 spaces of the other 40,000 sq. ft. had been allotted. The sum of $4,000 was voted to the Chicago committee for entertainment purposes.

The next winter sectional meeting is scheduled to be held in Washington some time in January and the spring sectional meeting with one of the western chapters.

It was also decided that the office of assistant secretary be established. The office will be filled in the near future.

In pursuance of a suggestion that the railroads be represented on the recommended practice committee of the society, the appointment of J. H. Gibboney, Norfolk & Western Railroad, as representing the railroads was approved by the board and Mr. Gibboney's acceptance was announced.

Murray Northrup, of the Hudson Motor Car Co., has been appointed as a member of the recommended practice committee in place of Mr. Schenck, of the Buick Motor Car Corporation, resigned.

The Banquet

The banquet had the largest attendance of any former one at sectional meetings, there being 331 members and guests present. The toastmaster was Samuel M. Stone, president Colt Patent Fire Arms Mfg. Co., and the address of welcome was delivered by B. S. Lewis, the Stanley Works, chairman of the Hartford chapter. President Robert M. Bird, national president of the society, responded to the toast, "Our Society," and a most interesting address on "Invention and Immigration" was delivered by Edwin P. Root, president New Haven Clock Co., New Haven. Frederick G. Hughes, vice-president New Departure Mfg. Co., Bristol, Conn., was the other speaker. Music was furnished by the Colonial male quartet and by a string quartet.

Plant Visitations

Plant inspections are always a prominent feature of these sectional meetings. They were enthusiastically taken advantage of this year. The plants which were opened were those of the Pratt & Whitney Co., Billings & Spencer Co., Union Drawn Steel Co., Royal Typewriter Co., Underwood Typewriter Co., Colt's Armory, Hartford Rubber Works, New Departure Mfg. Co., Bristol, Conn., and International Silver Co., Meriden, Conn.

Early Bird's Dinner

At the "Early Bird's" dinner, usually held after the meeting of the board of directors on the evening before the regular sessions, over 80 members and guests were taken in automobiles to the Farmington Country Club at Farmington, Conn., where a dinner was served, interspersed with music by entertainers.

Appoints Endowment Committee

Will Seek Funds for Engineering Foundation and Engineering Societies Library

At the meeting of Engineering Foundation in New York, May 19, W. L. Saunders, president of United Engineering Society, announced that in response to a request from Engineering Foundation last December and repeated suggestions from the founder societies of civil, mining, mechanical and electrical engineers, United Engineering Society had appointed an endowment committee to seek increase of funds for Engineering Foundation and Engineering Societies Library.

The personnel of this committee is made up of nominees of the four societies and other members, as follows:

Ex officio:

W. L. Saunders, president United Engineering Society, chairman.

L. B. Stillwell, chairman Engineering Foundation.

Sydney H. Ball, chairman Library Board.

Nominees of American Society of Civil Engineers:

Charles F. Loweth, Chicago; chief engineer Chicago, Milwaukee & St. Paul Railway.

H. deB. Parsons, New York; consulting engineer.

Ralph J. Reed, Los Angeles; chief engineer Union Oil Co.

Nominees of American Institute of Mining and Metallurgical Engineers:

D. W. Brunton, Denver; chairman board of consulting engineers, Moffatt Tunnel.

J. V. N. Dorr, president Dorr Co. (metallurgical, chemical and sanitary process equipment), New York.

Thomas Robins, New York; president Robins Conveying Belt Co., member Naval Consulting Board.

Nominees of American Society of Mechanical Engineers:

J. W. Lieb, New York; vice-president and general manager New York Edison Co.

Wynne Meredith, San Francisco; member of firm, Sanderson & Porter.

E. A. Simmons, New York; president Simmons-Boardman Publishing Co.

Nominees of American Institute of Electrical Engineers:

Calvert Townley, New York; assistant to president Westinghouse Electric & Mfg. Co.

H. A. Lardner, vice-president J. G. White Engineering Corporation, New York.

E. Wilbur Rice, Jr., Schenectady; honorary chairman General Electric Co.

Members-at-Large:

Charles F. Rand, New York; past president American Institute of Mining and Metallurgical Engineers.

James H. Perkins, New York; president Farmers' Loan & Trust Co., financial adviser and custodian of securities for United Engineering Society.

H. Hobart Porter, New York; Sanderson & Porter, and president American Water Works & Electric Co.

No hectic "drive" is planned, but an organization is being created to maintain a well-considered and persistent endeavor to get larger financial resources for Engineering Foundation and Engineering Societies Library as their opportunities for service develop.

Machinery Dealers Discuss Problems

(*Continued from page* 1505)

a regularly maintained list price is best for all concerned and does much to increase the respect of the buyer and to create a feeling that he is purchasing a staple article at an established price."

In another group of "open line" manufacturers are those furnishing prices and discounts to the entire list of resale agencies, but insisting that their list prices be maintained. The dealer who objects to this arrangement on the ground that someone is likely to cut the price is told that the privilege of quoting will be withdrawn from those agencies found to be offering concessions from the list quotations. On the other hand, there are a limited number of "open line" manufacturers who, when advised by a dealer that a machine is being considered by a prospect, will give to the dealer absolute protection for a limited, but in most cases adequate, time to secure the order. This particular group was said to be the most satisfactory to deal with. When protection is obtained, it encourages the salesmen to offer an "open line" machine if he sees the need for that tool.

Cannot Afford Missionary Work on "Open Lines"

Mr. Ridings emphasized that dealers cannot afford to do missionary work for "open line" manufacturers, as no protection is given on repeat business. He pointed out that the average machine tool is scarcely ever sold on the first call. Of the total sales of his company in 1925, Mr. Ridings said that 25 per cent was on "open line" tools, although 10 per cent of the "open line" sales were machines on which the company had received protection from the manufacturer. From correspondence with members of the association he believes that these figures are fairly representative.

"No dealer can hope to obtain a sufficient number of exclusive lines to take care of all of the requirements of his customers," stated Mr. Ridings, "hence it is necessary for him to turn to 'open lines' for assistance."

The practice of price cutting and the difficulty of handling "open lines" have resulted, it was said, from the great number of small dealers who sprang into being during the war. In fact, some buyers boast that they can buy any "open line" machine within 5 per cent of the dealer's cost.

Mr. Ridings recommended that a letter be sent to all "open line" manufacturers suggesting that they limit the privilege of quoting on their products regularly instituted machine tool dealers.

Handling of Used Tools a Problem

IN discussing "Second Hand Machine Tools," J. R. Van Dyck, Van Dyck-Churchill Co., New York, declared that "it is obvious that no dealer can maintain very much of a second hand organization if it is only to handle machines taken in trade. His stock list will not be sufficiently varied to attract buyers who use nothing but second hand equipment and he will soon lose contact with such buyers with the consequent loss of opportunities to change them into purchasers of new tools. This is not an imaginary condition, for all dealers are constantly finding out from their salesmen's call sheets about good, growing little concerns which equipped themselves with used machines without asking the dealers for quotations on new tools.

"I cannot believe," he said, "that it was a good thing for this industry that manufacturers and their agents permitted such a large part of the machine trade to get away from them, whatever the reasons might have been, and I am equally sure that the situation should not continue to be ignored by them. The dealer should decide for himself whether he should set up a second hand department, but if he does he should make certain that in no manner will it interfere with his work as a manufacturer's agent."

Mr. Van Dyck stated that the second hand machine tool trade is a live subject and is the very last problem that should be handled in an arbitrary manner. To agency dealers the second hand business is naturally a by-product, but when properly managed it is a useful one, not only for the profit in it, but also as a direct and essential aid to the sale of new tools. Mr. Van Dyck stated that "the dealer inexperienced in second hand matters who engages in trade deals is a menace to himself and a disturbing element to all other dealers who are trying to handle these matters along good business lines."

Mr. Van Dyck asked the members of the association to consider the following questions:

1. Do you think that the fact that the second hand tool business has fallen into the hands of people who are neither manufacturers nor manufacturers' agents is a good thing for the manufacturers and their agents?

2. Since it is conceded that the trade deals confronting manufacturers and their agents actually force them into the second hand business, are you satisfied with the present methods of marketing the machines acquired in that manner?

3. Is there any doubt that it is the duty of a manufacturer's agent to be prepared to protect his manufacturer's interests when sales of new machines are contingent upon trading in old ones?

4. Is there any merit in the idea that a manufacturer's agent is still the one best qualified to pass upon the advisability of offering a second hand machine to a customer in his territory?

5. It being obvious that there are a number of machine tool users who buy nothing but second hand machines and who resort only to second hand houses, is it advisable for manufacturers' agents to get into the second hand business and thereby maintain contact with these users?

Advocates Establishing Quotas for Salesmen

SALES quotas for their salesmen should be set by machine tool dealers and the progress should be shown as nearly up to date as possible, preferably on a chart, according to E. P. Essley, E. L. Essley Machinery Co., Chicago, in a paper on "Sales Quotas." Reports on efforts to attain an annual quota should be recorded at least monthly, and on monthly quotas daily postings should be made. He said that in his own company each salesman's standing is recorded on a daily stock report sheet. A photostatic copy of the chart in the company's office is sent on the 15th and the 26th of each month to salesmen not in the main office. As a result, it is surprising to note the amount of business closed in the last four or five days of the month. Mr. Essley advocated the immediate payment of bonuses or premiums earned by salesmen. Much of the psychological effect is lost when payments are made but once a year. He said that quotas, to be of any value, must be properly computed. They must be based on: 1. The number of potential customers in a territory, with proper attention to their buying power; 2. Past performance; 3. Consideration of the shift in buying power, such as the development of new industries and the decline of others; 4. General change in the economic conditions of the country as a whole. The second of these factors, he said, is the least accurate, but the most convenient and the most used.

He urged the development of a complete set of control ratios in a composite form so that it would represent the average of the experience of all of the association members collectively. He cited, for example, the ratios of sales to net worth, of sales to inventory, of sales to salesmen's salaries and expenses, of sales to accounts receivable, and of sales to unclosed business.

T. W. Carlisle, Strong, Carlisle & Hammond Co., Cleveland, read a paper discussing "what is ideal cooperation between a dealer and his salesmen; a study of the best method of adjusting salaries and a correct ratio between sales cost and individual earnings insofar as such matters can be resolved into set terms." C. A. Odegaard, Federal Machinery Sales Co., Chicago, discussed the cost of selling machine tools and suggested ways and means of lowering the expenses to both the dealers and manufacturers.

Mr. Van Dyck, president of the association, presided at all of the convention sessions. Other officers are Charles T. Bush, Charles A. Strelinger Co., Detroit, vice-president; T. W. Carlisle, secretary; George H. Cherrington, Brown & Zortman, Pittsburgh, treasurer.

Dealers represented at the convention were Brown & Zortman, Pittsburgh; Cadillac Machinery Co., Detroit; Cleveland Tool & Supply Co., Cleveland; Colcord-Wright Machinery & Supply Co., St. Louis; Elliott & Stephens Machinery Co., St. Louis; E. L. Essley Machinery Co., Chicago; Federal Machinery Sales Co., Chicago; Hill, Clarke & Co., Inc., Boston; Marshall & Huschart Machinery Co., Chicago; Manning, Maxwell & Moore Co., Inc., New York; Marshall-Huschart Machinery Co. of Indiana, Indianapolis; National Supply Co., Toledo, Ohio; Stocker-Rumely-Wachs Co., Chicago; Charles A. Strelinger Co., Detroit; Strong, Carlisle & Hammond Co., Cleveland; Syracuse Supply Co., Syracuse, N. Y.; William K. Stamets, Pittsburgh; Peninsular Machinery Co., Detroit; Henry Prentiss & Co., New York City; Motch & Merryweather Co., Cleveland; E. A. Kinsey Co., Cincinnati, and Van Dyck-Churchill Co., New York.

Keep File of Promising Employees

Analyze Men and Essay to Remove Their Deficiencies Through Instruction—Train Foremen as Recruits for Future Executives

BY CYRUS McCORMICK, JR.*

THE development of men is an all-important subject that presents some extremely interesting phases. I have never seen any figures exhibiting the turnover of men in executive positions. It is, however, large, because our executive system is a very just taskmaster.

Our schools and colleges, in greater or less degree, teach men how to think, how to concentrate, and how to educate themselves. Many big men of today have not had the benefit of a college education, but early in their careers they learned how to think constructively and educate themselves. This process of self-education is within the reach of every man, but industry has an obligation in aiding and assisting its organization in self-education. As a corollary to this, industry has just as great an obligation in providing its men with the new tools of an ever enlarging trade.

Fill Managerial Vacancies from Own Organization

We believe in the soundness of the principle of filling all vacancies from within our organization, whenever possible. We preach that when this proves to be impossible we ourselves have failed in a particular job of training a man for a given position. Regretfully we turn to the outside world to find there the talent which we ourselves have failed to provide. We practice the belief that no man has ever been injured by training under him a man better equipped for his position than is he himself. Such a policy is very effective in attracting better types of young employees, whether they be college men or men trained in thinking by other methods, and it will stimulate the older employees to greater effort and higher efficiency. The most effective method of training men to train men is to provide competition with other good men. The American industrial system is largely based upon the proved fact that its rewards go to those men best qualified to receive them.

This form of training is a continuous process of day-by-day and month-by-month perseverance and patience in thoroughly imbuing all ranks with company policy, spirit, and the like. It places tremendous responsibility upon the executives of an organization, because they, through their personalities, cannot but affect the men under them. If they are aggressive, their example will set up an aggressive spirit in their particular pyramid of activity. If they are experienced, the men under them will automatically seek for experience in order to attain promotion. If they are far-sighted, their juniors will seek to discover the secret of their vision and thus qualify for the position they have held until their own promotion. The force of example is the most potent training influence.

Foremen Are Studied for Promotion

I know of no better plan of organization to accomplish these results than by focusing upon the subject the attention of all concerned. I am profoundly conscious of the fact that promotion from the ranks to the position of an assistant foreman is made by an executive whose experience is very little larger. In seeking for a method to interest this foreman in thinking constructively on this score we must first remove the mystery that has surrounded promotion. Let him know that he is being examined and studied with the view of placing him, if he wins through, in a better job, and then get him to assess the men under him in the same way.

In our company we seek to do this by maintaining a file of progressive employees. On this file are listed all men in any given organization who, in the opinion of their superior officers, are qualified or will be qualified by additional experience for positions of high executive responsibility within the organization. These men are analyzed and their qualifications rated, thus giving us an inventory or audit of their strong or weak points.

Help Promising Men Overcome Their Weak Points

Through this information we are able to assist any particular man in fitting himself for a better position. Thus, if a man is strong in machine shop practice but deficient in cost accounting, it is a simple matter to see to it that his superiors give him special instruction in this regard. Or if the general foreman of a forge shop has reported that one of his men shows unusual intellectual grasp and if an examination of that man's record shows a lack of knowledge of metallurgy, it goes without saying that the young candidate cannot qualify for larger responsibility without instruction in heat treating. It is this direct analysis and special training that will automatically provide the future executives of an organization.

Must Conduct Two Types of Schools

There is no royal road to success in these respects. The young shop man will all too frequently, as his training progresses, fail to develop intellectually, as the schoolboy will all too frequently fail to appreciate the need of a sound body of practical experience. The course of production is such that industry cannot afford to favor too strongly either class of student and the needs of executive leadership are such that it must keep on trying to develop both. Where the industry is large enough to stand the overhead expense, it must run two types of schools; one devoted to providing practical experience to the theoretically trained man and the other devoted to providing mental growth to the boy whose hands are already skilled. When it is not large enough to do this job itself, it must seek to draw upon the educational system of the country.

When all is said and done, though, the factory manager himself is the best instructor of the foreman or of any other form of potential executive. The outstanding shop superintendent will be the one to produce the best volume, quantity, and cost; and he will also be the one—because he knows it is part of his job—to take on his own capable shoulders the responsibilities of foreman's training. His example will be more efficacious than a score of lectures. Strong men beget strong men. Leadership tomorrow starts today.

*Vice-President International Harvester Co., Chicago. Abstract from an address at the fourteenth annual meeting of the Chamber of Commerce of the United States at Washington, May 12.

British Strike Paralyzes Industry

Mills Operate on Short Schedule and Furnaces Are Banked—Russia Seeks German Plants and American Experts

(*By Cable*)

LONDON, ENGLAND, May 24.

THE iron and steel markets are paralyzed by the coal strike and nearly all furnaces are banked. Cleveland pig iron stocks are low and makers have increased prices by 2s. 6d. with hematite up 1s. per ton.

Some steel works are operating at about 50 per cent, while others have not resumed operations since the general strike because of transportation difficulties. The outlook is very uncertain and general closing down seems inevitable shortly unless the miners return.

April exports of pig iron totaled 40,412 tons, of which the United States took 10,086 tons. The total exports of iron and steel were 313,045 tons. Foreign ore is stagnant, with the Bilbao Rubio price nominal.

Tin plate is quiet and wholesale closing down will probably occur next week if the coal strike continues. Higher prices are anticipated. Galvanized sheets are dull, with few mills operating. The black sheet market continues idle.

The business of Continental mills is hampered by the industrial situation in Britain. Some European works are unwilling to quote on British business. The meeting in Brussels Tuesday, May 18, resulted in no substantial progress toward the proposed formation of an International Raw Steel Syndicate, as British works were not represented, which also was an obstacle to progress in completing the European Rail Makers Association.

RUSSIA SEEKS GERMAN WORKS

Locomotive Builder Invited to Move Plant and Personnel—Modernization Requires American Experts

MOSCOW, RUSSIA, May 8.—Failure to realize the grain export program of 1925 to 1926 has rather seriously affected the somewhat ambitious plans for development of the iron and steel industry. Much needed metallurgical equipment purchases have been considerably curtailed, so that the rehabilitation which had been expected will be somewhat delayed. Some assistance to the realization of these plans is provided, however, by the 300,000,000 m. credit in Germany, underwritten by the German Government, which will be spent in part on smelting, rolling and general engineering equipment.

With German unemployment acute as a result of lack of sufficient engineering business, Russia is endeavoring to induce German steel and engineering companies to move their entire plants into Russian territory, bringing with them their skilled personnel. That these proposals are being considered seriously seems evident from the fact that a Düsseldorf locomotive building company has expressed willingness to accept the Russian offer for a payment of 7,000,000 rubles.

That the situation caused by failure to realize the grain export program is not of extreme seriousness is apparent from the improved balance of foreign trade shown in March, so that with further improvement the program of plant restoration in the iron and steel industry may be realized soon. In the year ended with September, 1925, the State controlled iron and steel plants yielded a net profit of 3,437,000 rubles. In the same period the electrotechnical plants of the Government showed a net profit of 7,803,000 rubles, while the fuel production industries showed a loss of 431,000 rubles.

The Gosplan in a recent report on the smelting industry states that development is retarded by the shortage of coke and that importation will be necessary. Coal production, however, has increased this year. In the first quarter of 1926, the four Donetz coal companies produced 4 per cent more than in the last quarter of 1925 and 42 per cent more than in the first quarter of 1925.

In the fiscal year ended September, 1925, the total production of iron ore was 2,097,700 tons compared

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.86 per £ as follows:

Durham coke, del'd	£0 18½s.	$4.50
Bilbao Rubio ore†	1 1 to £1 1¼s.	5.16 to $5.19
Cleveland No. 1 fdy.	3 15 and 3 15½*	18.22 and 18.35*
Cleveland No. 3 fdy.	3 12½ and 3 13*	17.62 and 17.74*
Cleveland No. 4 fdy.	3 11½ and 3 12*	17.37 and 17.50*
Cleveland No. 4 forge	3 10½ and 3 11*	17.13 and 17.25*
Cleveland basic	3 12½ and 3 13*	17.62 and 17.74*
East Coast mixed	3 17	18.59
East Coast hematite	3 16 to 3 16½	18.46 to 18.58
Ferromanganese	15 0	72.90
*Ferromanganese	14 0	68.04
Rails, 60 lb. and up	6 15 to 7 5	32.80 to 35.24
Billets	6 0 to 7 10	29.16 to 36.45
Sheet and tin plate bars, Welsh	6 5	30.38
Tin plates, base box	0 19¼ to 0 19½	4.68 to 4.73
Black sheets, Japanese specifications	13 10 to 14 0	65.60 to 68.04
		C. per Lb.
Ship plates	7 0 to 7 10	1.52 to 1.62
Boiler plates	9 0 to 11 0	1.95 to 2.39
Tees	7 5 to 7 15	1.57 to 1.68
Channels	6 10 to 7 0	1.41 to 1.51
Beams	6 5 to 6 15	1.35 to 1.46
Round bars, ¾ to 3 in.	7 12½ to 8 2½	1.65 to 1.77
Steel hoops	10 10 and 11 0*	2.28 and 2.39*
Black sheets, 24 gage	10 15 to 11 0	2.33 to 2.39
Galv. sheets, 24 gage	15 10 to 15 15	3.36 to 3.41
Cold rolled steel strip, 20 gage	18 0	3.91

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)			
Belgium	£3 7s.		$16.28
France	3 7		16.28
Luxemburg	3 7		16.28
Basic pig iron: (a)			
Belgium	2 18		14.09
France	2 18		14.09
Luxemburg	2 18		14.09
Coke	0 18		4.37
Billets:			
Belgium	4 5	to £4 7s.	20.65 to $21.14
France	4 5	to 4 7	20.65 to 21.14
Merchant bars:			C. per Lb.
Belgium	4 16	to 5 0	1.05 to 1.08
Luxemburg	4 16	to 5 0	1.05 to 1.08
France	4 16	to 5 0	1.05 to 1.08
Joists (beams):			
Belgium	4 14	to 4 15	1.03 to 1.04
Luxemburg	4 14	to 4 15	1.03 to 1.04
France	4 14	to 4 15	1.03 to 1.04
Angles:			
Belgium	5 2	to 5 4	1.12 to 1.15
⅛-in. plates:			
Belgium	5 17	to 6 1	1.29 to 1.33
Germany	5 17	to 6 1	1.29 to 1.33
¼-in. ship plates:			
Belgium	5 5	to 5 10	1.15 to 1.21
Luxemburg	5 5	to 5 10	1.15 to 1.21
Sheets, heavy:			
Belgium	6 3	to 6 4	1.35 to 1.37
Germany	6 3	to 6 4	1.35 to 1.37

(a) Nominal.

with 913,800 tons produced in the previous fiscal year. The production of iron and steel also showed large increases, although far below the pre-war output. The iron and steel industry is one of the most backward of the important industries of Russia. The production of pig iron, for instance, was 4,557,000 tons in 1913, only 660,580 tons in 1923 to 1924 but increased to 1,303,610 tons in 1924 to 1925. Steel production shows about the same fluctuation, having dropped from 4,837,000 tons in 1913 to 992,674 tons in 1923 to 1924 and rising to 1,864,790 tons in 1924 to 1925.

Fuel scarcity is apparently an important factor in the explanation of this slow return to the pre-war production of iron and steel. As a result of the coke shortage the pig iron program of the Southern steel company, the largest producer, was curtailed for the present year by 6 per cent, and the steel production program of the same company was curtailed by 7 per cent.

Conditions in the metal industries were rather unsatisfactory in the last quarter of 1925, with production below the expected rate and costs higher. This was explained by the commissary in charge by the fact that wages increased more rapidly than the average individual productive capacity.

Modernizing of existent iron and steel plants is being given active attention. The Donugol combination of works is negotiating with August Thyssen & Co. in Germany for modernization of its plant and methods. The Government newspaper *Pravda* recently stated that "American methods are more suitable to Russia than German and the complete rationalization of our steel works on modern lines must be entrusted to highly paid American experts." At Tchita in East Asia the government has decided to build a modern iron and steel plant to replace the old Petrovsky Zavod charcoal smelting works.

The Council of Labor and Defence recently voted a plan for production of 104,900,000 rubles of electrical machinery and equipment in the current year. This figure, if reached will represent an increase of 63 per cent from last year's output. The council decreed in addition that "with the aim of reducing the extraordinarily high production costs of electric machinery and apparatus, the Supreme Economical Council shall be required to organize mass production on serial lines."

Japanese Place Two Orders for Rails in the United States

NEW YORK, May 25.—Inquiry for export is smaller than for some time. Japanese consumers have purchased a few small lots of tin plate, special shapes and similar material but new inquiries are scarce. Of the recent rail tonnage in the market Tokio municipality has placed 6 miles of 122-lb. and 140-lb. girder rails with the Mitsubishi Shoji Kaisha and the order will probably be given to a mill in the United States. The South Manchuria Railway Co. has closed on 70 miles of 65-lb. rails, about 7000 tons, with Okura & Co., New York, the business to go to a large American interest.

British Iron and Steel in April

LONDON, ENGLAND, (*By Cable*).—The production of pig iron in Great Britain in April was 539,100 gross tons and that of steel ingots and castings was 661,000 tons. This compares with 568,500 tons of pig iron and 784,100 tons of steel in March. The monthly average so far this year is 535,800 tons for pig iron, comparing with 519,700 tons per month in 1925, and 697,300 tons for steel, comparing with 616,400 tons per month in 1925.

A New Aluminum Alloy

It has been reliably reported that a new German alloy of aluminum is being developed at the Technische Hochschule in Berlin and by the chemical manufacturing and tin smelting company Theodor Goldschmidt Aktiengesellschaft of Essen. It is understood that the new alloy is also being rolled and worked by a manufacturer of the same district. It is to be called "Montago." The new alloy is said to be still somewhat lighter than duralumin, but has the advantage that it can be machined and worked much more satisfactorily. The manufacturers state that they are not yet ready to bring it on the market because there is some additional information concerning the method of treating it which must be successfully worked out before it is ready for general introduction.

Utilization of Georgia clays in refractories is discussed in Bulletin 252, issued by the Bureau of Mines, Department of Commerce. The bulletin is entitled "Beneficiation and Utilization of Georgia Clays," and appears under the joint authorship of R. T. Stull and G. A. Bole. The pamphlet may be obtained for 20c. by applying to the Superintendent of Documents, Government Printing Office, Washington.

France Exports More Industrial Machinery in 1925

French exports of industrial machinery amounted last year to 66,845 metric tons, compared with 60,936 tons in 1924 and with 61,020 tons in 1923. The gain was more than 9 per cent over each of the two preceding years. Imports at 52,977 tons showed a slight falling off from the 53,442 tons of 1924 and a loss of more than 7 per cent from the 57,241 tons of 1923. Imports from the United States, however, have steadily increased from $5,345,000 in 1923 to $5,745,000 in 1924 and $5,832,000 in 1925.

Germany furnished 4171 tons of machine tools to France in 1925, this being about one-third the total imports of machine tools. The United States furnished 3172 tons, or about one-fourth the total. The imports from the United States had to face exceedingly low prices of German makers. Reports from Germany indicate that much of the business which they secured was obtained at little or no profit.

Canadian Ferromanganese Not "Dumped," Treasury Department Rules

WASHINGTON, May 25.—Canada has not been dumping ferromanganese in the United States, according to the Treasury Department, which has just announced its refusal to issue an anti-dumping order. The United States appraiser of merchandise at Detroit had sent to Washington several notices in which reference was made to cases of suspected dumping.

"The matter had been investigated by an agent of the Department and by the assistant appraiser of merchandise at Buffalo," the department's letter said, "and from their reports, together with other corroborating evidence, it appears that the Canadian market value for this merchandise was reduced from $79.50 per ton f.o.b. furnace, which was the price on March 8, 1926, to $54 per ton on March 26. The reduction, it is stated, was due to British competition. The latter price was established as the Canadian market value by a number of actual sales since March 26."

A firm in Birmingham, England, recently issued a circular referring to itself as succeeding to the Birmingham business of William Jacks & Co., Ltd. This has called out a statement from William Jacks & Co., Winchester House, Old Broad Street, London, that some time ago it acquired the good will of William Jacks & Co., Ltd., on the liquidation of the business of the latter firm. William Jacks & Co. are represented in the United States by E. Arthur Tutein, Inc.

American Iron and Steel Institute Technical Papers

(*Continued from page* 1496)

phasized in a discussion by O. W. Irwin, manager reinforcing steel sales, Truscon Steel Co., Youngstown, which was read by Secretary Clarke. He pointed to the recent adoption of 10 standard sizes of concrete bars, eliminating numerous other sections which had been used.

Observations on Phosphorus in Wrought Iron

BY HENRY S. RAWDON AND SAMUEL EPSTEIN

THE present article summarizes the results obtained in the testing of several lots of wrought iron, made by a manufacturer who utilizes both the hand puddling and a mechanical puddling method in his regular practice in the production of wrought iron for pipe. Part of the wrought iron tested was made especially for these tests, the raw material having been taken from the same cast of pig iron, separate portions of which were refined by hand puddling and by mechanical puddling respectively. The type of mechanical puddling processes used has been described by Thomas Turner in his book, "The Metallurgy of Iron." This particular lot of wrought iron proved rather unusual in its properties and of higher phosphorus content than the manufacturer's regular bar iron product, since a specially high phosphorus pipe iron was being made. The results are presented here for their bearing on the effect of phosphorus on the properties of wrought iron.

The author then discusses the subject under the various headings of phosphorus in wrought iron, the materials tested and the results of tests, with a discussion accompanied by numerous photomicrographs of the various features in the structure of the irons tested. The results of the limited number of tests which were possible on the irons representative of the two puddling processes will not permit the drawing of any general conclusions regarding relative merits of the processes. On the other hand, it may be pointed out that nothing was found as a result of these tests which would suggest that wrought iron cannot be made by a mechanical puddling process of the type used fully the equal of that from the hand puddling process.

It is also stated that the phosphorus content of the raw material can be reduced to a lower value more readily by the mechanical puddling process carried out on a relatively large scale than by the ordinary hand puddling process. Variations in properties pronounced enough to warrant rejection of the iron under current American specifications may occur within the limits of a single bar, particularly if the phosphorus content is somewhat above the normal value.

Discussion

Metallurgical books of today, taken as a whole, lay stress on the harmful effects of the phosphorus present in iron, but state nothing of its virtues, said Charles T. Ressler, engineer of tests, Reading Iron Co., Reading, Pa., in discussing Messrs. Rawdon's and Epstein's paper. Numerous analyses made on old samples of wrought iron used as structural members of bridges and subjected to severe stresses of all kinds; pipe subjected to severe corrosive conditions; forgings and other parts of locomotives and cars, show higher percentages of phosphorus in many cases than is found in much of the wrought iron of today, Mr. Ressler said.

In the threading of pipe, he declared, the wrought iron containing the higher percentages of phosphorus gives the best results, the threads being clean cut and sharp and possessing greater strength when made up into the fittings. His company has taken pipe of this kind and made up joints and has broken them as many as 20 times without distorting the threads, and, as a final test, has made up the same joints by running up tight by hand and subjecting them to hydrostatic tests of 2500 lb. per sq. in. without showing any signs of leakage. The benefit of this virtue, he said, applies specifically where pipe is reused a number of times as in oil well service.

Mr. Ressler also said that his company finds that phosphorus improves the welding qualities of wrought iron, the material becoming more plastic. Tests made recently by one of the largest locomotive works show that phosphorus in percentages somewhat higher than usually found in the regular grades of staybolt iron has no particularly bad effect on the physical properties or resistance to vibratory strains.

Relative to claims that phosphorus increases the resistance of soft steel to corrosion, Mr. Ressler said that some argue that phosphorus in wrought iron has a like effect, but he knew of no evidence to prove it as his department has investigated many old irons low in phosphorus that have given as long service as those in similar service with higher phosphorus. That is, the higher phosphorus adds little, in his opinion, to the effective resistance furnished by the slag enveloping the individual fibers.

He also finds that wrought iron high in phosphorus, but of course within legitimate limitations, reduces the ever-present blistering tendency. This, he declared, is of first importance in the manufacture of wrought iron pipe.

Mr. Ressler said he did not wish it understood that he advocated high phosphorus for all purposes. He desires to be understood as advancing his company's conviction that wrought iron can carry a reasonable content with some advantage provided the puddling process and subsequent operations have been efficiently carried out. This applies specifically to pipe.

He said further:

"In our hand puddling furnaces, when we start with pig iron containing two-thirds of 1 per cent of phosphorus, the finished product will contain about two-tenths of 1 per cent, and if lower phosphorus is desired, we must start with pig iron much lower, while in the mechanical puddler we can consistently obtain under 0.06 per cent from the higher phosphorus pig named.

"For purposes where resistance to torsion is important, we find that the higher phosphorus content increases the resistance in direct proportion to the amount of phosphorus present. This feature is of considerable importance in drill pipe for wells.

"The startling difference noted in the results of the impact test where the blow was applied to the flat face of a bar reduced from a slab pile compared to the same force when applied to the side, can, we believe, be best explained on the theory that the welds were imperfect between the individual slabs, resulting in a more defined laminated condition than is common in good practice. Such a bar would present many of the characteristics of a spring formed of a number of leaves.

"It is true, as stated in the paper under discussion, that the real phosphorus content of the iron matrix may be less than one-half of the total phosphorus content, the remainder being in the slag. This distribution is due to proper control in the puddling furnace during the refining process. The mechanical puddler by uniform and more pronounced agitation and by reason of more accurate temperature control, insures a more thorough refinement of the pig iron, the resultant product displaying uniformity in structure and in distribution of the slag. This feature is clearly shown in the results of the repeated impact test as well as by photomicrographs.

"Reference has been made to the fact of the mechanically puddled iron containing less phosphorus than

the hand puddled, when the initial content of the phosphorus in the pig iron, from which both were made, was the same. This is explained by the reason that the phosphorus has less affinity for the element iron at a low temperature than at a high temperature and a greater affinity for the oxide and, conversely, the affinity of phosphorus and oxide of iron increases as the temperature is less. The practice in hand puddling on the part of a vast majority of the men is to work on the hot side of the proper temperature, thereby increasing the phosphorus content of the iron itself. This was clearly proved in the old washed metal process, where it was found that if the temperature increased above the proper point, the phosphorus content of the metal increased, in other words, the refining process was not efficiently effected.

"It is for the foregoing reasons that the Reading Iron Co. maintains higher phosphorus for pipe, as shown in the hand puddled iron. However, the 0.29 phosphorus is in excess of regular practice."

Modern Steam Power Stations

BY C. W. E. CLARKE AND D. L. GALUSHA

TRACING the developments in modern large power stations, the authors of this paper pointed out that such developments are now more than ever of particular interest to the engineer in the steel industry. The problems of steel mill power design, where mills are, or are to be, electrified have more points of similarity with public service central station design than would appear on first thought, it was said. Mill electrification brings the service required of steel mill power stations into somewhat the same class as that of public service central stations for the following reasons:

1. By requiring the production of electric energy as the principal product of the station rather than the production of a large amount of steam for distribution and a small amount of electric energy.
2. By allowing of or requiring larger and more efficient steam electric generating equipment.
3. By concentrating prime mover equipment in one location and thereby permitting the use of devices for the increase of economy not practicable in a scattered arrangement of prime movers, even though these in themselves are of efficient design.
4. By the concentration of boiler equipment and the reduction of spares due to the advantage of diversity factor.
5. By the necessity for reliability in service for electric energy production.

These points, the authors said, naturally indicate the possible use of many of the recent developments in power station practice heretofore discussed in cases where a steel mill power station is to be designed for economical and reliable results. The problem is the same as in central station practice except as affected by the availability of blast furnace gas or waste heat suitable for boilers. The expenditure of capital to increase efficiency in a plant having an excess of usable by-product fuel or by-product heat is manifestly absurd, it was stated, unless the excess power produced can be sold profitably. The effect of blast furnace gas on the steel mill power station problem was illustrated by a chart made up from conditions obtaining at a mill in the Pittsburgh district. The curves of the chart were made up on the basis of steel production in a particular mill averaged over a five-year period. The study showed that of the 8760 hr. in a year, 2600 hr., or about 30 per cent of the total, showed a deficiency of blast furnace gas. With no sale of excess power to an outside company, if devices were installed to increase the efficiency of the station further, say for instance, sufficient to raise the effect of blast furnace gas converted to station output from 419,000,000 B.t.u. to 450,000,000 B.t.u., the returns on capital invested for such devices would have to be based on only 2250 hr., or 26 per cent of the service per year.

An attractive procedure for the steel mill, the authors pointed out, would be to develop and sell the waste power for all the hours of the year that the blast furnace gas available energy exceeds the energy required by the mill. The difficulty, however, in this is that it is dump power, largely available nights and Sundays, which are off-peak periods for central stations and most other industries.

A development, which has not been used to any extent as yet in central station practice in this country, but which merits study in connection with such conditions as are outlined above is the steam accumulator. This device stores energy produced by the boiler in off-peak periods in the form of high-temperature, high-pressure water which may be flashed into steam for use in peak periods. The apparatus in principle is not new. The early designs, however, were in general not satisfactory because of ineffective valving and control for the production of dry steam and it is only recently that accumulators have been developed which apparently successfully overcome the difficulties.

In the case of isolated blast-furnace plants, it may be profitable to build a steam generating station and sell power, as the cost of producing energy will be such that the company can sell at a low figure and yet receive an active return. A description of the operation of such a scheme was presented before the Cleveland district section, May, 1925, by O. C. Callow, electrical engineer of the Trumbull-Cliffs Furnace Co., Warren, Ohio. For steel mill plants which have no blast furnaces, the problem of station design is very similar to the central station design problem. Energy must be obtained for the least overall cost, inclusive of fixed charges, and in the cases where it is economical to generate rather than purchase power from the central station, the extent to which money can be spent to produce additional efficiency depends largely on the cost of fuel and the load factor.

In addition to by-product power from blast-furnace gas and waste heat, there is in the industrial field another form of by-product power which may be obtained from steam necessary for heating process work, for apparatus that cannot be converted to electric drive, etc., by generating steam at a higher pressure than required for the service and using a turbo-generator as a reducing valve. Ordinarily, in the completely electrified steel mill, less of this kind of by-product power can be developed than in other industries, in which large amounts of process steam are used, such as, for instance, many chemical industries.

The principal points of similarity in central station and steel mill power station requirements, when mill electrification is used, have been listed and discussed, but there are two characteristics of the steel mill electrical load which are superior to the typical central station load. These characteristics are:

1. High load factor.
2. Controllable power factor.

The first calls for fuel economy, except where affected by the blast furnace gas conditions. The second effects a reduction in the cost of the plant by allowing smaller generators, less copper for busses, transmission, etc.

Discussion

In a discussion of this paper, J. E. Fries, chief engineer Tennessee Coal, Iron & Railroad Co., Birmingham, called attention to power developments at the company's plant. He explained that the plant is interconnected with the hydroelectric system of the Alabama Power Co. and that practically all power generated by the steel company is derived from surplus blast furnace gas burned under steam boilers. The fluctuations of blast furnace gas are taken care of by burning pulverized coal under a certain number of boilers at periods when there are not sufficient furnace gases available. The coal used is of such quality that there is no market for it. This surplus power carries the

base load of all mining and other industrial undertakings of the company and enjoys a high load factor, which was 77 per cent in 1925. All energy above this base load, Mr. Fries said, is obtained from the Alabama Power Co. The steel company needs only a generating installation of 20,000 kw. when inter-connected with the power company, but otherwise would have to have additional generating capacity of 30,000 kw., and this equipment, if installed, would be used to full capacity only 40 per cent of the time. Mr. Fries commented on the economic advantages to the steel plant from such a plan of inter-connection with a power company.

Not Economical to Heat Feed Water with Exhaust Steam

"Probably the largest field for improvement in economy in steel mill power production is in the boiler house, as many of these were designed during an era of cheap fuel, but there is a tendency to the adoption of 250 lb. and not over 200 deg. superheat instead of following the commercial practice of extremely high pressure," said S. S. Wales, Carnegie Steel Co., Pittsburgh, in discussing Mr. Clarke's paper.

"Because it was economical to use exhaust steam for feed-water heating from low-efficiency steam users in the early days, does not make it economical to run low-efficiency equipment today to provide steam for this purpose. The primary cause for using steam for heating feed water was to recover heat otherwise lost, a condition which has been greatly modified, if not removed, by the introduction of the modern condenser. Having discarded the house turbine as a feed water heater, the logical following step would be to abandon steam altogether for this purpose and use a separate efficient low pressure coal-fired boiler instead."

The reconstruction of existing steam plants for the use of powdered coal can be avoided, in the opinion of Mr. Wales, by using coal still more finely divided (than the present standard) to 80 per cent through 400 mesh instead of 200 mesh. This coal would closely approach gas in its action and would burn efficiently in the cramped space available.

The steel works boiler house should be equipped to handle a variety of fuels, said Mr. Wales. It should be able to dispose of such by-products as are offered, as well as to run largely on coal in case accident interrupts the supply of by-products. Steel mill boilers should be simple in construction and they should be operated at moderate pressures and superheats, and not forced to exceptionally high ratings.

TO STUDY FURNACE SLAGS

Engineering Foundation Finances Investigation of Desulphurizing Agents

Engineering Foundation Board at its meeting in New York May 19 voted financial assistance to two important engineering research projects in response to requests from founder societies.

The American Institute of Mining and Metallurgical Engineers, after careful investigation, recommended an appropriation to aid Prof. Richard S. McCaffery, head of the department of metallurgy of the University of Wisconsin, in continuing a study of blast furnace slags. This investigation was undertaken to determine the quality of different iron blast furnace slags as desulphurizing agents and the possibility of using in the blast furnace materials of higher sulphur content than is now usual.

The solution of the problem would render feasible the use of higher sulphur iron ores for pig iron, the use of coke containing more sulphur than is now practicable, and the economical manufacture of irons and steels of lower sulphur content. This research promises results of great importance not only to the iron and steel industries, but to several others and to the users of their products.

The American Institute of Electrical Engineers requested financial assistance for a research in dielectric absorption to be conducted by Prof. John B. Whitehead in the laboratories of Johns Hopkins University. This topic is one of several recommended by Professor Whitehead after extensive inquiry by the committee on electrical insulation, of the National Research Council, of which he is chairman. He is also chairman of the research committee of the American Institute of Electrical Engineers.

Discuss Steel Residence and Other Building Construction

How the cost of construction can be reduced in all parts of the United States through the better and wider use of steel was explained May 18 at a dinner at the Statler Hotel, Buffalo, attended by structural steel fabricators of New York and Pennsylvania and by a large number of architects, engineers, bankers, contractors and municipal officials. The total attendance was 250. The event was held under the auspices of the American Institute of Steel Construction, and Charles F. Abbott, executive director, and Lee H. Miller, the institute's chief engineer, spoke.

Mr. Abbott predicted that within the next few years steel frame construction would be extensively used in the erection of dwellings. He pointed out that aside from the factor of greater protection against fire, a comparison of costs between steel and wood frames already favors steel. Further standardization of shapes and large scale factory production, he said, would still further lower the cost of steel for residence construction, thus aiding in the solution of the high cost of the housing problem.

Mr. Miller, speaking of the construction of large buildings, emphasized the importance of the Institute's standard specifications for the design and erection of structural steel, which standard substitutes recognized engineering practices for the wide variations that have frequently resulted in unjustifiable practices and a lowering of standards. The institute's specifications, according to Mr. Miller, were drawn to assure a combination of safety, durability and the most economic use of steel.

"Based on an exact knowledge of the capabilities of steel," said Mr. Miller, "the application of the specifications makes possible a saving of 12 per cent in the amount of steel needed for any steel frame building. The country-wide adoption of the specifications will result in an annual cut in the nation's building bill of approximately $50,000,000.

William G. Houck, president Buffalo Structural Steel Co., presided.

Output of Refined Primary Lead in 1925

The production of refined primary lead in the United States in 1925, from domestic ores, amounted to 654,921 net tons, valued at $113,956,000, according to statistics compiled by the United States Bureau of Mines. These figures represent the largest quantity and highest value for any year in the history of the lead industry of the country. As compared with 1924, they show an increase of 16 per cent in quantity and 26 per cent in value. The value of the output is based on the average selling value per pound as reported by the lead smelters. Missouri ranked first in the source of lead smelted or refined; Utah held second place, and Idaho was third. Mexico was the chief source of foreign ore refined in this country.

The apparent consumption of refined primary lead in the United States in 1925 amounted to 658,000 tons, as compared with a consumption of nearly 603,000 tons in 1924.

Stress Stabilization in Sheets

(*Continued from page* 1501)

uct was not nearly so important as that coming from other industries and from the appearance of new products that vitally affected the sale of older staple articles.

He illustrated the observation by drawing attention to the distress suffered by many manufacturers of sole leather, whose sales had been affected by the use of automobiles for short trips formerly made on foot. A desperate condition among Boston manufacturers of lace curtains was not the result of competition among manufacturers in that industry, but rather to a change in home designs that made side drapes more popular than lace curtains. Furniture manufacturers report smaller demand, presumably because more money is spent on automobiles than in the homes. A new wall board made out of sugar cane waste is competing heavily with lumber and wall board made from other materials. There is competition not only for other fabrics, but for the paper industry from a silk substitute, the raw material of which is sulphite wood pulp, the use of which in this product has boosted prices of paper.

Competition among manufacturers of a product can reduce profits and cause a failure here and there, but the business record today shows the failure in some instances of entire industries owing to the larger kind of competition. Certainly there is need for cooperation among manufacturers selling the same product if the present conditions must be met successfully.

Why Unanimous Backing of Master Brand Sheets is Warranted

Lines of thought in the mind of the general public favorable to sheet steel as a whole must be started. In many cities, steel garages are prohibited by building codes, mainly because of their unsightly appearance, and improvement in design of steel garages will open up a valuable market. The clay products industry at present is in full possession of the enameled bath tile field. Sheet steel can be enameled and it is estimated that this represents a market for 125,000 tons of sheet steel.

There was good reason why those not making galvanized sheets should back the effort to establish and market the "Master Brand" galvanized sheet, because once the public is convinced that it is superior to the prepared roofing or tile, it will take that much steel out of competition with automobile and other finishes of sheets. Citing the favorable results attained by cooperative effort and advertising of other industries, Mr. Miller defined what these efforts might mean in the way of competition with sheet steel, and suggested service, research and unity as the keynotes to success.

Service was not merely the telling of the public of the product, but the indicating to consumers of new uses of the product. He mentioned an Eastern stamping company which, told of the use of sheet steel for toys, had started making them and was now doing as great a business in that direction as it was in stampings. Research will disclose new uses for steel, and often a new outlet is more valuable than two or three new customers for old uses. Unity meant a singleness of action and of talk.

Discussing at the session of May 20, the Master Brand galvanized sheet, Walter C. Carroll, vice-president Inland Steel Co., Chicago, declared that it did not matter much whether its sale had been heavy or light at the beginning of the campaign, but much more important that the step has been taken to bring to the knowledge of the buyer that a good, trustworthy galvanized sheet was available. It, moreover, challenged the buyer who professes an interest in quality, but who made his purchases strictly on a price basis.

The specifications which control the manufacture of the Master Brand galvanized sheet materially affect the cost of the production and it is difficult for any mill to observe the specifications without absorbing, by reason of increased cost, practically all of the extra $5 per ton in the selling price. If quoted at an advance of 25c. per 100 lb. over the price of commercial galvanized sheets, it is not therefore a money-making scheme.

Four Grades of Galvanized Sheets

It is true that the field of usefulness for Master Brand galvanized sheets is limited. This is due to the fact that the spelter coating is too heavy to withstand severe or rapid machine operations. It is impossible to cover the entire range of purposes for which galvanized sheets can be used with one quality or one weight of coating for any particular gage. There are really four important galvanized grades which should be made.

In the first class are those sheets which are to be used for flat work; in the second class, those which are to be corrugated and subsequently formed in curving rolls, which would include sheets for culverts; in the third class, sheets for general forming work, such as cornices, ventilating systems, etc., and in the fourth division, sheets which must be drawn in dies, or formed by high speed machines, such as garbage can covers, corner bead, conductor pipe, window frames, sash, etc.

The Master Brand coating will satisfactorily answer the less severe requirements under class three and in many instances will be more satisfactory for class two work than are the heavier coatings frequently specified for work of this character. Except under unusual atmospheric conditions Master Brand sheets should give a good account of themselves under class one. That leaves only class four, the work of which necessitates extremely light and tight coating and it is neither recommended nor should Master Brand sheets be sold for any of the purposes contemplated by that classification.

"If it is agreed that the industry has done the right thing in establishing a Master Brand galvanized sheet," Mr. Carroll asked, "should not the same reasoning be extended to other sheet mill products?" The principal element lacking in other finishes is the coating, but in highly finished products, the standard for surface is quite as important as the weight for spelter on galvanized sheets. Licenses to use the Master Brand on other sheet products should be granted to those who apply when the analysis of the base metal can be approved and there is sufficient assurance that the finished product will be fully up to the best commercial standards for the grades in question.

An address by J. L. Grimes, advertising manager, Wheeling Steel Corporation, Wheeling, W. Va., on, "The Possibilities of the Trade Extension Program from the Members' Standpoint," was optimistic as to the outlook for the success of the campaign. He told of the efforts and results of similar programs by a number of other industries and while recognizing all of the problems to be met and overcome before the goal was reached, expressed firm belief in ultimate success. What is everybody's job is nobody's job. Hope will not turn the trick and there will be no element of luck in its success, which will come only through wholehearted interest and plenty of faith in the plans by those participating.

The experiences of any number of associations, whose members had the faith and the vision and determination to put over the job, are sufficient to show how unlimited are the possibilities of sheet steel, especially as that product is indispensable and of fundamental need.

Breaking Down Objections in Building Codes

George L. Bennett, director building trade extension, Sheet Steel Trade Extension Committee, Pittsburgh, in his talk on "Relation of City Building Codes to Sheet Steel Demand," told of the efforts that were being made to break down in building codes the objection to sheet steel garages on the score of unsightliness and open up a market to a considerable tonnage of sheet steel. A contest held under the direction of his department had developed a large number of reasonably satisfactory designs for sheet steel garages that would overcome the prejudice based on appearance and that architects had been enlisted in the work of bringing out attractive steel garages. A publication soon will be issued, Mr. Bennett said, showing steel garages of improved appearance.

He also told of a test recently made by the Bureau of Standards, in Washington in developing the fire resistance qualities of the steel garage. Although the replies to a questionnaire indicated that between 300 and 310 lb. of combustible matter was all that was to be found in the ordinary two-car garage, the Bureau of Standards put in 950 lb. of lumber and other inflammable material, while the two old cars had full complements of oil and gasoline. This was a severe test. Outside the garage was built walls of wood 12 in., 8 in. and 24 in. away from the building. The test provided absolute data for presentation to building commissions. It proved that wooden buildings 12 in. and 18 in. from a steel garage would take fire, but that at a distance of 2 ft. the danger was obviated. A building of brick construction of course would be impervious at a distance of 2 ft. The fire came out of the garage only through the doors, and the garage, which was distorted by the fire, returned to normal shape after about three hours.

A brief but interesting talk was given by Murray Springer, general director, operating branch, Sheet Steel Trade Extension Committee, who while noting a "Let George do it" attitude on the part of the companies subscribing to the trade extension campaign, was grateful that at least the member companies lately had been showing enough interest in the movement to give many helpful criticisms. His subject was, "Converting Interest into Profitable Tonnage."

The sheet steel industry, Mr. Springer said, had, in 1925, an income of $20,000,000 more than in 1924, but added that if the same prices as ruled in 1924 had held in 1925, the gain in monetary return would have been more than $50,000,000. The loss was the penalty of backlog business seeking. His plan for the conversion of interest into tonnage briefly was that steel company salesmen should be called upon to use that unused 50 per cent of their ability by carefully selecting from among their customers those that might be responsive to new uses for sheet steel and then with no idea of an immediate order, sit down with the prospect and lay the thing completely before him. An aid would be a publication of the committee, known as the market builder.

What May Be Done Toward Market Stabilization

CHARLES O. HADLY, vice-president Alan Wood Iron & Steel Co., Philadelphia, whose subject was, "Some Aspects of Market Stabilization," did not mince words in pointing out the reasons for the lack of that condition in today's market. He reviewed the early efforts made toward market stabilization, down to that embraced by the organization of the United States Steel Corporation a quarter century ago. He said in part:

"The users of steel are keen and alive to all of our competitive problems as well as their own. They endeavor to offset their own difficulties by securing from us a uniform and high standard of quality at the lowest and most favorable figures for their own finished product, but do not equally appreciate the production anxieties and selling hazards of the steel maker.

"It is well known how much attention and thought has been given the elimination of waste in production as affecting cost. Careful study by metallurgists, operating managers and accountants has shown that too frequently the expenditures necessary to produce articles to given specifications have not been recovered in the selling price and which obviously has the same adverse effect on profit as would result from waste in production. When such a business or commercial handicap exists and the eventual unfavorable reactions occur, there is created an intolerable economic condition, which calls for modification to whatever extent is reasonably necessary to avoid menace to the trade structure, jointly reared by producer and consumer.

"Attention has been called to the low rate of earnings of most steel companies during 1925, notwithstanding a phenomenally high tonnage rate of production; THE IRON AGE, on the title page of its Jan. 7 issue, asked a pertinent question: "When will the steel industry cure itself of selling its products at prices which leave it less than a fair profit?"

More Needed Than Spasmodic Search for Remedy

"It is easy to say, 'When will we stop putting a premium on overproduction and keep a firm hand on cost and price relationships'—but are we nearer or farther from any real accomplishment? When rivalry for tonnage precedence continues to invite reprisals, who is responsible for such 'raw' market reports as have appeared in some of the trade papers within the past month and which have caused a local snow ball to gather size and momentum until it threatened to become an avalanche to roll down the mountain side and crash through to widespread devastation, havoc and loss?

"Commercial cleverness in selling has taught commercial cleverness in buying. We let other people commit commercial crimes because we do not want to be indicted for what we ourselves may have done.

"It is true that every group tends to cooperate for its own protection. Everybody in the same group has been on to everybody else, only sometimes we do not tell them. What might have been done by way of prevention is always the other man's business. A spasmodic or impulsive search without chart or compass for a panacea for existing ills for the sheet steel industry is like walking backward in the dark. In watching production records and their too frequent companion, lower prices, in the sheet steel industry, men have been known to run so fast to get to a place that they were out of breath when they got there and could not tell why they were there. And there appears to be some back-tracking necessary.

Suggests Clearing House for the Industry

"We need to clarify our thinking somewhat to keep our selling methods in step with the great changes which have come in production and use, and (with the different point of view) to enable the industry to function at a fair profit, free from suspicion and without legal restrictions or destructive commercial handicap. It would seem, after weighing all economic aspects, that something of the nature of voluntary pools, such as were more or less in vogue some years ago, could be adapted to legal requirements, or if not, then some other properly supervised clearing house or regulating tribunal, which would be justified by most helpful and economic results to insure permanence and fair profits to the industry and in the broadest sense, a real benefit to consumers, employees and the general public.

"I do not know any corrective plan in our business which is more substantial than the attitude of mind in which we approach it. The sheet industry, in my opinion, must determine and settle its own attitude of mind and heart toward standard classification and market stabilization, in their commercial interpretation and application, before it can reorganize its tendencies and customs or eliminate those financial nightmares brought on by so-called market abuses.

"If we believe that cooperation is the natural law of progress and are aware of the causes of the conditions and causes which produce chaotic and disturbed conditions with inevitable losses, may we not individually and collectively become equally intelligent or alert as to processes, perhaps yet undiscovered and imperfect, but whereby adequate organization, stabilization, security and profit may be reasonably assured?"

More Steel in Dwelling Construction

BENNETT CHAPPLE, publicity manager, American Rolling Mill Co., Middletown, Ohio, left no doubt as to his belief in the steel house as the abode of the future. With the denuding of the forests and only one tree being planted where four are being cut down, there is the prospect of very high-priced lumber in the near future. Already, there is a scarcity of high-

grade lumber and so much poor lumber is being used that there is a danger that in the long run the cheap house of wood construction would be an expensive proposition and repairs would be so frequent as to set up a burden on those who built them, usually working men, who could least bear it.

Mr. Bennett counted on the fire protection afforded by the steel house to count heavily in its favor, not only in a reduction in the loss of life, but because of what it will mean in insurance savings. A steel house dissipates lightning. He said that the architects believe in safe construction and fireproof material, but the material is yet to be provided and they are waiting on the side lines.

Bringing out the obstacles that every new product had to overcome, the speaker referred to the difficulty that attended the getting of contractors to erect the structural steel for the first steel framed building in New York. Objectors' minds were filled with metal garages and corrugated roofings and had no real vision or picture of the steel house. It was suggested that the arrival of the steel house meant new mechanics, but the automobile also meant new mechanics and they were found. It was a great opportunity for the steel industry, particularly for the sheet steel industry, which, however, must act promptly if it did not want the business to go to those making light structural members.

EUROPE'S BUSINESS CONDITIONS

Situation in Some Countries Far from Satisfactory, Says William La Coste Neilson of Norton Co.

William La Coste Neilson, vice-president and general sales manager of the Norton Co., Worcester, Mass., returned last week from a three months' tour of Europe in the interest of his company. He visited Great Britain and all the countries of the Continent with the exception of the Scandinavian peninsula, Russia and extreme southeastern Europe. A summary of business conditions as he found them, including an analysis of the European machine tool market, he gives to THE IRON AGE as follows:

"There is no particular degree of prosperity in the machine tool industry in Europe. In those countries where currency values are depreciating there has been a tendency to spend the currency so as to avoid the risk of further depreciation. For instance, money has been and still is being spent freely in France. This has caused a great activity in manufacturing. The condition has existed for the last 18 months. Manufactured articles have sold freely.

"Probably the manufactured article which has benefited the least has been the machine tool because there were nearly enough on hand to take care of the requirements of the market. There were many manufacturers whose shops had been over-equipped for war business, and there were many machines new and second-hand available from excess war supplies. However, during the last six months there have been in France some important purchases of machine tools particularly by motor car manufacturers. This has been to meet an expansion in the production programs of these shops, particularly by the installation of the latest designs of machine tools.

"It is probable that further replacing of obsolete types of machines would occur were it not a greater probability that a general depression will occur in that country because of the unsound financial position. It seems steps will need to be taken to stabilize the franc, and when that occurs, a serious business depression is looked for. The reason business flourishes in the face of this prospect is because of the lack of confidence in the value of the currency. There is a desire on the part of all to convert currency into goods or property.

Depression in German Industry

"The manufacture and sale of machine tools in Germany was improving during 1924 and early 1925, but after the full effects of the stabilization of the mark were felt, a general business depression started and is now serious. Many industrial plants are operating on less than half the schedules of a year ago. Money is tight, although somewhat easier than during the last quarter of 1925. Prices of all articles in Germany are high. This and the money scarcity impedes domestic business and the high exchange rate impedes export business, although the extent to which Germany is regaining her export trade is particularly noticeable in recent months. It is expected general business will remain in a very depressed state during the remainder of this year.

"Business in eastern European countries is very depressed. Czechoslovakia, which since the war has been the most prosperous, has shot its bolt for the time being. Poland, Hungary and Austria are all poor in pocket and doing very little. Political troubles aggravate the situation, particularly in Poland.

Situation is Better in Italy

"Things are better in Italy and it is generally thought will continue to improve. There have been some considerable purchases of American, English and German machine tools during the last year or two, but not in proportion to the generally improved business conditions throughout the country.

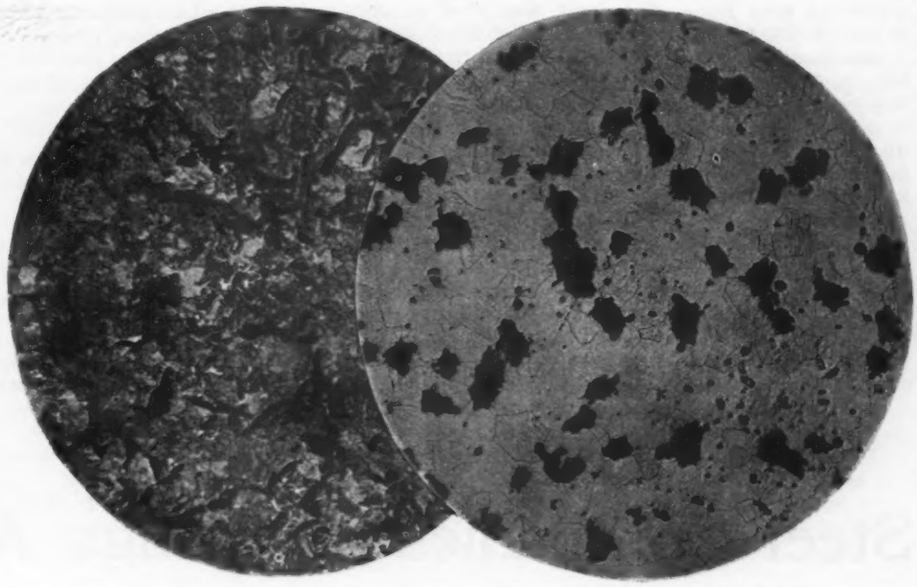
"In England business has gradually improved but has not reached a satisfactory volume. In the engineering trades the recovery has been particularly slow. However, if the present strike trouble is satisfactorily settled, there is little doubt but that there will be a further improvement. The very gradual recovery of business in England is possibly safer than the spectacular recovery experienced in France. Certainly there will not be the same monetary cause of a serious slump. Financially and politically, I believe England to be in far better position than is generally recognized.

"So far I have referred to conditions in general which in a way include conditions in the machine tool industry. I want to add a word about another side of the matter, the ability of European countries to produce machine tools.

American Tools Show Superiority

"They have learned to make better machine tools than formerly. For years it has been difficult for them to pay for American goods and this has more or less forced them to speed up their efforts to produce their own. Improvement in quality is very marked but in my opinion still falls a long way short of the quality of American-made machine tools. There are exceptions to this. Certain machines are manufactured in England which are equal in quality and workmanship to American machines of similar types, but on the whole the American supremacy in designing and manufacturing machine tools is today well maintained. The degree of superiority is not as great as it was because Europeans have had more room for improving their products and have also had the opportunity of copying. Cost of labor is lower in Europe and therefore the prices of machines which are good copies are comparatively low. This makes sales resistance toward American machines. There is further sales resistance in certain countries in national campaigns in favor of home-made goods.

"It is reasonable to suppose Europeans will become more proficient in the manufacture of machine tools and this will make it increasingly difficult for American goods. It is only in special machines the prospect appears satisfactory. In what might be called standard types of machines, the difficulties will increase in proportion to the speed with which the European machines are improved in quality. I believe Americans can always stay ahead in design, invention and workmanship but not sufficiently far ahead to maintain the degree of supremacy which they have enjoyed, especially in respect to standard types of machine tools."



Meehanite Metal, Magnified 100 *Diameters and Etched With* 10 *Per Cent Amyl Nitric Acid Solution, at the Left. Malleable cast iron, similarly magnified and etched, at the right. The physical strength of Meehanite is attributed to its dense matrix of uniformly distributed nodules of graphitic carbon*

NEW CAST IRON

Meehanite, Made by Adding Calcium Silicide to Iron, Has Unusual Physical Properties

"Meehanite" metal, a new cast ferrous product brought out by the Ross-Meehan Foundries, Chattanooga, Tenn., has an average ultimate tensile strength of 50,000 lb. per sq. in., as compared with 20,000 to 25,000 lb. per sq. in. for ordinary gray iron. Moreover, the material preserves its integrity almost up to its high breaking point. The yield point is within 2 per cent of the ultimate strength.

Transverse and torsional strengths, like the tensile strength, are high. Transverse tests made by Enrique Touceda, Albany, N. Y., showed a deflection of 0.03 to 0.05 in. at a load of 2500 lb. and 0.10 to 0.14 in. at the loads at which the bars broke, which ranged from 5500 to 6600 lb. per sq. in. Torsion tests, also made by him, showed an ultimate twisting moment of 9600 to 10,260 in.-lb. for test bars ranging from 1.052 to 1.063 in. in diameter. As to compressive strength Meehanite, it is stated, will stand 125,000 lb. per sq. in.

The Brinell hardness of cast iron varies from 140 for soft machinery castings to 600 Brinell for white irons. The average Brinell hardness of Meehanite is 258, but it may be readily machined, acting more like steel than cast iron. In cutting the metal in an engine lathe, turnings are formed varying from ½ in. to 3 in. long. The turned surface resembles soft steel. Smooth threading of the metal is effected with the lathe tool or die.

Castings made of Meehanite, it is explained, may be hardened to as high as 946 Brinell and still retain high tensile strength. Charpy impact tests on 30 specimens of Meehanite showed an average of 6.9 ft.-lb. of energy absorbed.

The specific gravity of Meehanite is 7.49. This compares with 7.41 for malleable iron, 7.20 for gray iron, 7.71 for hard iron and 7.92 for steel castings.

Meehanite, it is asserted, has great resistance to heat; that there is no change in the strength of the metal up to 800 deg. Fahr. Tests at higher temperatures than 800 deg. are now being made.

The physical strength of Meehanite is attributed to its dense matrix of uniformly distributed nodules of graphitic carbon, which is well broken up. It is contended that Meehanite is more resistant to acids than any other ferrous product. This resistance, it is said, is not due to any of the chemical constituents of the metal, but is accounted for wholly by the size of its grains. The theory is advanced that acids work around the large grains, instead of consuming them entirely, causing them to slough out. In the case of Meehanite the acid must attack each one of its small grains. Mee-

Meehanite, at the Left, and Gray Iron, at the Right, Unetched and Magnified 100 *Diameters. The carbon in Meehanite exists mostly in small nodules surrounded by ferrite and pearlite. Meehanite has many times the number of grains in gray iron.*

hanite, it is asserted, has 400 or 500 times as many grains as gray iron. The dense matrix of graphite nodules is also said to be conducive to evenness of wear.

Meehanite is a patented alloy iron. It is not an alloyed metal, however, in the sense that an element is added which is not present in the ordinary gray iron or malleable iron charges. The alloy is calcium silicide. Just when it is introduced and in what quantities has not been made public. The process of making Meehanite is said to be analogous to that used for making malleable cast iron. White iron is made first, after which the alloy is introduced, transforming the metal into a gray iron.

Meehanite may be made in the cupola, the air furnace or the electric furnace. Typical chemical analyses of the metal are in the table.

The Ross-Meehan Foundries is making licensed contracts on a royalty basis with plants desiring to make the product. Because of its high ultimate strength which makes for a minimum thickness of shell, together with other characteristics mentioned, Meehanite is believed to be particularly well adapted for cylinder castings, bearings, gears, hydraulic valves, piston rings, propeller wheels, boiler castings, pump cylinders, automobile cylinders, and for other castings requiring resistance to pressure, non-porosity and high strength.

	Elements in Per Cent				
	Silicon	Sulphur	Phosphorus	Manganese	Carbon
Air or electric furnace	1.15 to 1.40	0.04 to 0.05	0.10 to 0.18	0.50 to 0.90	2.20 to 2.60
Cupola	1.30 to 1.80	0.08 to 0.14	0.12 to 0.20	0.50 to 1.00	2.40 to 2.70

Steel Companies' Earnings Analyzed

About 5.9 Per Cent Was Average 1925 Return on Stockholders' Investment in Companies Representing Over 87 Per Cent of Country's Ingot Capacity

COMPILATION of figures of earnings of steel companies, taken from their annual reports for 1925 and tabulated here for 42 companies representing more than 87 per cent of the ingot capacity of the United States, shows 5.90 per cent earned in 1925 on stockholders' investment. This compares with 4.80 per cent on a smaller list of companies analyzed a year ago, on page 1424 of our issue of May 14, 1925. The stockholders' investment is taken to represent the sum of the common stock, the preferred stock, and both appropriated and unappropriated surplus. The story was told briefly last week, on page 1446.

In calculating the earnings, all depreciation and depletion have been deducted from the reported gross earnings. In addition, bond interest has been deducted as being in essence a payment of interest upon borrowed money.

Listings of stocks, surplus, etc., are those as of Dec. 31, 1924. Earnings are for the year 1925. It will be noted that two of the companies earned more than 20 per cent. Eight others earned more than 10 per cent. This is in contrast with last year, when only one company exceeded 10 per cent. Two of this year's companies, on the other hand, show a deficit in place of a surplus, although both are reported to have made net earnings.

Stockholders' Investment in Various Steel Companies and Earnings for the Year 1925 with Percentage of Return on Investment (Companies Listed Represent 87 Per Cent If Country's Ingot Capacity Be Taken at 56,000,000 Gross Tons; Amounts Given in Thousands of Dollars)

Name of Company	As of Dec. 31, 1924			Total Stockholders' Investment	Net Earnings for Year	Stockholders' Earnings on Investment, Per Cent
	Common Stock	Preferred Stock	Surplus			
American Rolling Mill Co.	$21,000	$11,906	$12,810	$45,716	$2,886	6.31
Atlantic Steel Co.	1,000	700	628	2,327	263	11.30
Bethlehem Steel Corporation	180,152	59,433	94,004	333,588	13,858	4.15
A. M. Byers Co. (Sept. 30)	750	4,500	3,849	9,098	1,040	11.43
Central Steel Co.	1,223	6,189	15,954	23,366	3,374	14.44
Colorado Fuel & Iron Co.	34,236	2,000	1,462	37,697	1,752	4.65
Columbia Steel Corporation	7,385	9,445	897	17,727	777	4.39
Crucible Steel Co. (Aug. 31)	55,000	25,000	21,819	101,818	4,525	4.44
Donner Steel Co., Inc.	4,523	9,000	1,176	14,698	793	5.40
Eastern Rolling Mill Co.	28	2,744	1,146	3,917	921	23.53
Gulf States Steel Co.	2,000	11,214	4,138	17,352	1,036	5.97
M. A. Hanna Co.	12,000	14,215	1,885	28,100	287	1.02
Inland Steel Co.	35,000	10,000	18,617	63,617	4,869	7.65
International Harvester Co.	99,877	60,563	55,121	215,560	19,171	8.89
Interstate Iron & Steel Co.	4,000	2,060	3,140	9,200	1,108	12.04
Jones & Laughlin Steel Corporation	57,332	55,928	35,081	148,341	9,854	6.64
Laclede Steel Co.	2,750	.....	1,732	4,482	699	15.61
Ludlum Steel Co.	1,288	.....	1,845	3,133	400	12.78
Lukens Steel Co. (Oct. 31)	15,899	.....	1,700	17,599	120	0.68
Midvale Co.	14,575	.....	527	15,101	394	2.61
National Enameling & Stamping Co.	15,592	10,000	7,248	32,839	1,166	3.55
Otis Steel Co.	3,705	8,831	8,217	20,752	1,404	6.77
Pacific Coast Steel Co.	2,184	2,184	1,545	5,912	219	3.71
Penn Seaboard Steel Corporation	5,859	.....	600	6,459	82	1.28
Pittsburgh Steel Co. (June 30)	17,500	10,500	8,529	36,529	1,052	2.88
Railway Steel Spring Co.	13,500	13,500	13,903	40,903	2,348	5.74
Replogle Steel Co.	17,331	.....	.....	17,330	649	3.75
Republic Iron & Steel Co.	30,000	25,000	32,921	87,921	3,813	4.34
Rogers-Brown Iron Co.	5,000	2,550	(deficit)	7,550	1,168	15.48
Sharon Steel Hoop Co.	14,297	1,000	(deficit)	15,296	511	3.34
Sloss-Sheffield Steel & Iron Co.	10,000	6,700	8,584	25,284	1,978	7.83
Superior Steel Corporation	4,154	.....	531	4,686	105	2.25
Taylor-Wharton Iron & Steel Co.	1,600	1,875	376	3,852	34	0.89
Trumbull Steel Co.	15,692	9,999	10,611	36,302	1,575	4.34
Truscon Steel Co.	4,255	2,255	2,232	8,743	2,293	26.23
United Alloy Steel Corporation	4,525	10,000	27,500	42,025	3,128	7.45
United States Steel Corporation	508,303	360,281	717,960	1,586,543	90,602	5.71
Vanadium Corporation of America	15,324	.....	1,497	16,821	1,193	7.09
Virginia Iron, Coal & Coke Co.	10,000	5,000	274	15,274	193	1.27
Wheeling Steel Corporation	39,429	27,493	5,772	72,693	4,073	5.60
Wickwire-Spencer Steel Corporation	9,892	.....	.....	9,891	348	3.52
Youngstown Sheet & Tube Co.	75,000	14,241	25,417	114,659	13,227	11.54
Total	$1,373,157	$796,305	$1,151,260	$3,320,722	$195,868	5.90
Total, except Steel Corporation	864,854	436,024	433,300	1,734,179	105,266	6.07
Excepting also Bethlehem	584,702	376,591	339,296	1,400,591	91,408	6.53

Forging Business Situation

(*Continued from page* 1517)

The company which has the best personnel and most efficient employees, a good location marketwise and a stable policy based on accurate factors regarding its own costs and the market demand, will get its share of the business, will hold it and will make a profit. It cannot be dislodged permanently from its position by price-cutting competition. In the end, stockholders or bankers do not judge performance on this year or that year. It is what is done over a period of years; this means providing for depreciation, bad accounts, obsolescence, etc., and also reasonable dividends, not for this year alone but over a period of years. There is nothing more distressing than great fluctuations, particularly those resulting from special selling or manufacturing stunts, they are generally of doubtful value and cause a sad reaction. Stability of policy, foresighted thinking, alertness in selling and operation give more dependable results.

Business men, said Mr. Smith, are looking forward to the near future with determination, rather than with apprehension. The banks of the country have ample funds available at low rates for all industrials that are sound in character and management.

Tells of Activities of Bolt and Nut Association

THE experiences and development of the Bolt and Nut Association were outlined by its president, Charles J. Graham, Pittsburgh. That association first undertook a thorough study of cost accounting and then attacked the problem of waste elimination both as applied to the materials used by the manufacturers of bolts, nuts and rivets and also in the standardization of products for the consumer's use. A problem which has been attacked with a measured degree of success is that of the elimination of competition by users. The railroads have for some time been large makers of bolts and nuts for their own use. A study of production cost has revealed, however, that as a general proposition a railroad cannot produce these products at as low a cost as the manufacturer who makes a specialty of that work. The result has been that many large railroads no longer manufacture bolts and nuts and so do not now compete with that industry. Mr. Graham is of the opinion that although cooperation is important the greatest problems any association has to solve are to find constructive leadership and to gain the confidence of the industry.

Thorough Safety Work in Drop Forge Plant

IT is important that accident prevention be considered primarily from the human side rather than from that of the dollar mark, said Gustav A. Kuechenmeister, personnel manager of the Dominion Forge & Stamping Co., Walkerville, Ont.

At the Walkerville plant there has not been an accident due to an unblocked ram for the past five years. This is the result of having supplied proper blocks, fitted with handles, and by the insistence of the foreman that the blocks so provided be used by the men in the shop. Foot treadles have always been a source of danger whether on hammers or presses. An operator may step on a treadle at the wrong moment, he may forget to take his foot off and so cause the machine to repeat or a forging may slip under the bar and prevent the clutch pin from slipping into place. In any event treadles should be covered as a safety measure but at Walkerville, in the cold trim department, the treadles have been removed and electric solenoids and push buttons have been installed. The results show that where formerly five or six fingers were lost each year only four such cases have occurred within the last five years. Usually two buttons are installed on each press, the reasoning being that the operator, in keeping both hands occupied, will be less likely to be injured. If one hand is occupied in holding the forging it is necessary for the operator to push only one button to operate the press.

Large Reduction in Eye Injuries

It should be an axiom in all forge plants that no man is ever safe from eye injury unless he wears goggles all the time. For five years at Walkerville, prior to the insistence upon the use of goggles, the cost for compensation, medical aid and awards for permanent disability was $9,176, an average cost of more than $1,668 per year for eye cases alone. With goggles in general use during the four and one-half years, June 1, 1921, to Jan. 1, 1926, eye cases cost $396, or an average of $88 per year and in that time not a single man suffered the loss of an eye and only a few days' time were lost. To show how quickly the order took effect figures were cited showing that the eye cost for the first half of 1921 was $3,234, and for the last half, after the order had been issued, it was $13.20.

All objections to wearing goggles, it was shown, can be overcome. Liquid preparations, containing glycerine, are to be had in the market and these help materially in allaying the inconvenience resulting from the sweating of the eye glass. For men engaged in heavy manual labor, when sweat will roll down the forehead, a head band of elastic tape, covered at the front with an absorbant material, will prevent sweat from finding its way inside of the goggle frame and interfering with the vision of the worker.

Develops Board Hammer Pulley "Catcher" Device

The problem of board hammer pulley shafts breaking, allowing the pulley to fall to the floor and resulting in serious injury to workmen, has been eliminated by the design of a pulley catcher. This is made by cutting a groove in the extended hub of the pulley and into that groove are fitted forgings which are securely attached to the hammer frame. For pulleys now in operation a fixture taking the place of the grooved extension of the hub has been designed. It can be attached to an old pulley thus giving the safety features of this device without replacing an expensive machine part. Mr. Kuechenmeister stated that he would furnish blue prints of this device to any one interested.

Careful Selection of Materials for Repairs

METALLURGY is not alone a factor in the selection of materials for production purposes but also enters into the maintenance of productive equipment. Harold F. Wood, metallurgist of Wyman-Gordon Co., Worcester, Mass., stated that much waste of product and time can be traced to the fact that metallurgy and mechanics do not enter hand in hand into the maintenance of shop equipment. It is important that magnitude, direction and character of stresses be known but the cause of failure remains also to be known and in many cases it can be determined only by a thorough knowledge of the materials used. A defective die, or one improperly seated takes that equipment out of the category of a tool and places it in much the same position of a piece of material undergoing a physical test in a testing machine, that is, it is subjected to repeated stress until failure occurs. The solution to this condition lies in the selection of proper materials in both the machine and the die.

Another source of much lost time and rejected product is the unusual wear of machine parts. Other causes of failure are over-design resulting in too great rigidity and the uses of scrap or odd pieces of material of unknown quality for making machine repairs. Mr. Wood does not recommend a long list of special repair materials but he does suggest that, taking bearings as an example, one grade of bearing metal of known properties will be more satisfactory from the standpoint of continuous operation than will be the miscellaneous use

of odd lots against which no check can be made as to the cause of failure or satisfactory results.

Advantages from Proper Use of Cost Accounting

ADVANTAGES to be derived from proper cost accounting were outlined in a paper by Frank D. Fuller, general manager, Moore Drop Forge Co., Springfield, Mass., in a paper on "Forge Shop Production and Cost," which was read by Frank S. Hatch. Cost accounting, properly used, enables one to estimate new business, to calculate an exact cost on every job produced while it is being produced, to determine a fair selling price and further it furnishes an intelligent guide to profitable and non-profitable business.

The cost accounting system employed by his company was briefly outlined by Mr. Hatch. He believes that the cost of operating a hammer or any other piece of machinery for an hour is definite and does not vary between jobs. Therefore, the hourly rate should not be lowered when applied to a poor job nor increased when applied to a good one. His point being that a manufacturer would not think of reducing or increasing the amount of steel charged to a job, depending upon whether it was a bad or a good one and therefore why should that manufacturer take such liberties with the burden expense on his equipment?

W. Chattin Wetherill, director of metals utilization, Department of Commerce, Washington, delivered a paper on the elimination of waste in industry and offered his full cooperation to the institute in the further solution of this problem.

NEW TRADE PUBLICATIONS

Water Softeners.—Cochrane Corporation, Seventeenth Street and Allegheny Avenue, Philadelphia. Bulletin No. 665 of 24 pages is devoted to zeolite water softeners. The bulletin partakes of the nature of a treatise on the subject and is well illustrated.

Welding Equipment. — International Oxygen Co., Newark, N. J. A 12-page illustrated bulletin describes the equipment covering a complete line of welding and cutting apparatus as manufactured by this company. The "Eyeosee" high-pressure valve is featured.

Admixture for Concrete.—Cellite Products Co., Los Angeles, Cal. Bulletin No. 317 gives specifications for architects and engineers covering the use of cellite as an admixture for concrete.

Fire Brick.—Ashland Fire Brick Co., Ashland, Ky. A 6-page folder entitled "The Little Devils of High Temperature Service" describes the various qualities claimed for certain types of the company's product.

Flow Meters.—Republic Flow Meters Co., Chicago. A 4-page folder describes the new Republic motor-driven CO_2 recorder. The instrument supplied up to this time has been operated by city water pressure but, in localities having bad water, this has been a disadvantage and the motor-driven instrument has been developed.

Electric Generating Sets.—Standard Turbine Corporation, Scio, N. Y. Bulletin No. 5, describing small turbo generator sets in sizes from ½ to 10 kw.

Power Factor.—General Electric Co., Schenectady, N. Y. Bulletin GEA-232 of 32 pages combines a brief treatise on power factor and its meaning with catalog features covering induction and synchronous motors, capacitors and condensers. It is the tie-up between the motors and the other equipment which is designed to improve the power factor. Considerable tabular matter is given in connection with operation of these units.

Capacitors.—General Electric Co., Schenectady. Catalog of 12 pages devoted to instruments for correction of power factor and designed to provide additional line capacity. Examples are given of definite monetary savings through use of this device.

Pumps.—Allis-Chalmers Mfg. Co., Milwaukee. Leaflet No. 2082 of 8 pages entitled "Centrifugal Boiler Feed Pumps" devoted to illustrated description of the company's pumps of the multi-stove type.

Refractory Cements.—Norton Co., Worcester, Mass. A small 12-page leaflet describes some of the products of this company and outlines the uses of the different types.

Non-Ferrous Alloys and Products.—Hills-McCanna Co., 2025 Elston Avenue, Chicago. An attractive and highly illustrated pamphlet of 26 pages discusses the special non-ferrous alloys which this company makes and some of the products manufactured from them. The company's policy in the marketing of corrosion-resisting materials is fully discussed.

Temperature Regulator.—New Departure Mfg. Co., Bristol, Conn. Loose-leaf folder No. 171 FE describes a regulator designed to control and maintain temperature at a fixed degree and also with variation in relation to time.

Flexible Shafts and Equipment.—N. A. Strand & Co., 5001 North Lincoln Street, Chicago. Twenty-four page pocket-sized folder devoted to flexible shafting for all purposes, and equipment to go with it. This includes grinding wheels, buffing wheels, brushes, rotary files, drills, screw drivers and nut setters.

Electric and Magnetic Equipment.—Clark Controller Co., Cleveland. Bulletins 100, 101 and 102 are devoted respectively to manual controllers, screw jack dead ending clamps and magnetic brakes. Each bulletin is of eight pages and fully illustrates and describes the equipment covered. Tables of dimensions, ratings, weights and list prices are given.

Gas Producers.—Wellman-Seaver-Morgan Co., Cleveland. Bulletin No. 85, 48 pages. Describes and illustrates with photos and reproduction of drawings the W-S-M type L mechanical gas producer. In addition, a large amount of valuable data is given in tabulated form covering gasification of West Virginia, Pennsylvanian, Indiana, Illinois and English coals, gasification of coke, comparisons of producer gas with fuel oil and natural gas, logs of producer operations, typical analyses of American coal and data showing gas producer efficiency.

Oil Circuit-Breakers.—A special publication 1643-A describing the application of oil circuit-breakers has just been released by the Westinghouse Electric & Mfg. Co. It describes fully the general application of oil circuit-brakers, the determination of short-circuit current, and the precautions necessary, and devotes a number of pages to tables and charts. Several interesting halftone illustrations are also included.

Barometer and Vacuum Recorder.—Uehling Instrument Co., Paterson, N. J. Bulletin 150 is devoted to a combined barometer and vacuum recorder designed for use with steam turbines. The instrument is illustrated in considerable detail and sample charts are shown.

Refractory Gun.—Quigley Furnace Specialties Co., 26 Cortlandt Street, New York. Folder of 12 pages devoted to apparatus for making quick repairs and providing maintenance of furnace lining, including hot patching and surface coating. The gun handles pre-mixed plastic refractory material, throwing it at high velocity and with accuracy to any place requiring patching. It is said that it will stick to either a hot or a cold wall.

Drop Forged Tools.—Billings & Spencer Co., Hartford, Conn. A complete catalog of 120 pages covering the Billings line of drop forged mechanics' tools. This is the 36th edition and gives list prices for a wide variety of products. Wrenches of all types, screw drivers, pliers, hammers, lathe dogs, tongs, clamps, ratchet drills, and a number of other specialties make up the catalog, of which almost two-thirds was required for the hundreds of types of wrenches made.

Pneumatic Tools.—Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago. Catalog No. 15, 64 pages, gives dimensions and general information regarding Thor chipping, calking, beading, scaling and riveting hammers, rivet busters and core busters, self-supporting pneumatic hammers, sand rammers, pneumatic holders-on, piston air drills, turbine air drills, portable air grinders, pneumatic motor hoists and pneumatic tool accessories.

"Catalog 6001B".—General Electric Co., Schenectady, N. Y. A volume of more than 1100 pages describing in details the multitudinous types of equipment made by that company. The book measures 8¼ x 10¾ in., is heavily illustrated and carries list prices, capacity and dimension data and other particulars in connection with much of the apparatus described. Naturally it does not go into the larger special power plant units, which are designed separately for each job. It does, however, give 50 pages to motors of various types and about 60 pages to applications of motors. Industrial heating covers 27 pages and surveys the situation all the way from the glue pots to heat treating furnaces.

Machinery Markets and News of the Works

BUSINESS IS QUIETER

Lessened Activity in Buying of Machine Tools in Some Districts

Associated Machine Tool Dealers at French Lick Convention Convinced That Conditions Will Remain Fairly Satisfactory

WHILE there has been a lull in the buying of machine tools in some districts with a proportionate decrease in the number of inquiries, the volume is still fairly satisfactory. In their convention at French Lick Springs, Ind., the Associated Machine Tool Dealers gave voice to the belief that business will remain fairly good during the next three months even though the volume may be slightly lower. There was a deal of optimism that buying will be resumed on a more extensive scale in the fall, particularly by the automotive industry.

Purchases by automobile manufacturers in the five months of this year are ahead of those during the same period last year, and while the past month has not been so good as the earlier months of the year, that industry is still taking more machinery than any other metal-working line. Last week a Detroit automobile company bought 10 standard lathes and another bought three.

Considerable railroad business is pending, but action is somewhat slow. One of the most promising projects in this field is that of the Brooklyn-Manhattan Transit Co., which is expected to close shortly on about 50 tools and upward of 20 cranes for Coney Island repair shops. The New York, New Haven & Hartford is reported to have bought sand blasting machinery for its Readville, Mass., shops, but has done nothing on a list of metal working equipment under consideration for some time. Nor has the Boston & Albany closed on tools required for its West Springfield, Mass., shops. The Atlantic Coast Line is figuring on three or four turret lathes.

A railroad in Brazil is inquiring for 10 lathes. Six lathes for export to South America have been ordered from an Ohio maker.

New York

NEW YORK, May 25.

THERE was a decided lull in the past week in the inquiry for and purchase of machine tools. Business is still on a fairly satisfactory basis with some sellers, while others are doing little. On the whole, the volume of business this month may fall somewhat below that of earlier months of the year. The list of the Brooklyn-Manhattan Transit Co., comprising about 50 tools and 24 cranes, has not been bought, but bids were submitted last week and early action is expected. Recent purchases have included a 60-in. horizontal boring, drilling and milling machine by a large steel company in Pennsylvania, five automatic lathes, an automatic vertical surface grinder and a spline miller by a Michigan automobile manufacturer, a centering machine by a steam pump maker in Phillipsburg, N. J., a hand milling machine by a Plainfield, N. J., company, a 13-in. geared head lathe by a large storage battery manufacturer, a multiple spindle drill by a Detroit manufacturer and a measuring machine by a Chicago company.

The Arizona Lacquer Mfg. Co., 7-17 Sixteenth Street, Brooklyn, has awarded a general contract to Paul Dubroff, 1290 Sutter Avenue, for a two-story addition, 25 x 100 ft., to cost about $25,000. Harold G. Dangler, 215 Montague Street, is architect.

The Empty Package Supply Co., 264 Johnson Ave, Brooklyn, manufacturer of boxes, cartons, etc., has leased the two-story factory at Waterbury and Ten Eyck Streets for a new plant and will install equipment at once.

The Gould-Mersereau Co., 52 West Thirty-eighth Street, New York, manufacturer of hardware specialties, has purchased the building at 189-91 Lexington Avenue, 41 x 100 ft., and will remodel for a new headquarters and distributing building.

The New York Steam Co., 280 Madison Avenue, New York, has engaged Dwight P. Robinson & Co., 125 East Forty-sixth Street, engineer and contractor, to prepare plans for its proposed one and two-story power plant on East Thirty-fifth Street, 150 x 150 ft., and 50 x 150 ft., to cost approximately $400,000 with machinery. James D. Hurd is president.

Patrick S. Murray, 141 East Fortieth Street, New York, architect, has completed plans for a four-story automobile service, repair and garage building, 25 x 100 ft., at 306 East Ninety-eighth Street, to cost about $65,000.

The Ideal Roller & Mfg. Co., Forty-ninth Street and First Avenue, Brooklyn, manufacturer of printers' rollers, etc., has leased a new factory to be constructed at Long Island City, reported to cost close to $50,000. The present works will be removed to the new location. Headquarters are at 2512 West Twenty-fourth Street, Chicago.

The Standard Oil Co. of New York, Inc., 26 Broadway, has authorized an increase in capital from $375,000,000 to $437,500,000, a portion of the fund to be used for the acquisition of the General Petroleum Corporation, Los Angeles, Cal., with oil refinery at Vernon, near Los Angeles. Plans are under consideration for extensions in facilities in this district.

The White Co., Cleveland, manufacturer of motor trucks, has preliminary plans for a new one-story service, repair and garage building on Cypress Avenue, between 132nd and 133rd Streets, New York, 175 x 210 ft., to cost close to $80,000 with equipment. The company is now operating a service branch on Thompson Avenue, Long Island City.

The New York Edison Co., Irving Place and Fifteenth Street, New York, has secured a permit to construct a new three-story power house, 18 x 89 ft., at 118 West Fifty-third Street, to cost approximately $85,000.

The Simms Petroleum Co., 120 Broadway, New York, is reported to be planning the construction of a new refinery near Smackover, Ark., to cost in excess of $1,500,000 with machinery.

The factory and equipment of Samuel W. Cornell, 121 Court Street, Brooklyn, manufacturer of hardware, will be sold under a partnership dissolution sale, the machinery, fixtures, etc., on June 8, and the real estate on June 14. Henry A. Cornell is the liquidating partner.

Moore & Landsiedel, 148th Street and Third Avenue, New York, architects, are preparing plans for a two-story automobile service, repair and garage building, 95 x 100 ft., at 173rd Street and Boone Avenue, to cost close to $70,000 with equipment.

The Bates Mfg. Co., 33 North Day Street, Orange, N. J., manufacturer of numbering machines and parts, has acquired a three-story factory on site 115 x 208 ft., at West Orange, N. J., and will remodel for a new plant. The present works will be removed to the new location.

The Fred Adee Corporation, 3 Cliff Street, New York, plumbing equipment and supplies, is having plans completed for a two-story storage and distributing plant, with pipe-cutting, threading and other departments, 60 x 100 ft., at Englewood, N. J., reported to cost about $50,000 with equipment. Frank A. Moore, 607 Fifth Avenue, New York, is architect.

Fire, May 18, destroyed a portion of the automobile body and carriage manufacturing plant of Peter Dowling, Marshall Street, Paterson, N. J., including forge and blacksmithing department, with loss reported at $65,000 including equipment. Plans are under consideration for rebuilding.

The Board of Water Commissioners, Rahway, N. J., is considering the installation of pumping machinery and auxiliary equipment in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $160,000. Bids will be asked in June. Hazen & Whipple, 25 West Forty-third Street, New York, are architects.

The Board of Education, Vineland, N. J., contemplates the installation of manual training equipment in its proposed two-story and basement high school, estimated to cost $550,000, for which bids will be asked on a general contract in about 60 days. Guilbert & Betelle, Chamber of Commerce Building, Newark, N. J., are architects.

The Board of Public Works, South Amboy, N. J., George W. Crane, chairman, is planning an early call for bids for equipment for the proposed electrification of the municipal waterworks.

The L. J. Wing Mfg. Co., Victoria Street, Newark, manufacturer of fans, blowers, etc., will take bids at once for a one-story addition, 60 x 150 ft., on Frelinghuysen Avenue, to cost about $45,000. Fletcher-Thompson, Inc., 350 Madison Avenue, New York, and 542 Fairfield Avenue, Bridgeport, Conn., is architect and engineer.

The Llomin & Wales Co., Inc., 345 Madison Avenue, New York, manufacturer of concrete steel forms, has filed plans for a one-story addition to its plant at 204-10 Riverside Avenue, Newark, to cost approximately $20,000.

The Bradley Motor Co., 163 Highland Avenue, Newark, operating an automobile body plant and machine works, is disposing of tools and other equipment and will discontinue business.

Milton M. Unger, receiver for the Essex Clipper & Tool Co., Inc., 38-42 Littleton Avenue, Newark, will dispose of the machinery and assets of the company and will discontinue operations.

The Board of Education, Linden, N. J., plans the installation of manual training equipment in its proposed three-story junior high school estimated to cost $700,000, for which bids have been asked on a general contract. Harold B. Brady, 333 North Broad Street, Elizabeth, N. J., is architect.

The Arena Lamp Fixture Co., 1366 Sixtieth Street, Brooklyn, has been organized with capital stock of $10,000 to manufacture electric lighting fixtures. J. Colucci is head of the company.

Kraeuter & Co., Inc., 585 Eighteenth Avenue, Newark, is inquiring for four 15-in. engine lathes with 8 ft. bed; must all be of the same make.

Buffalo

BUFFALO, May 24.

REVISED plans have been ordered by the Federal Portland Cement Co., 1082 Ellicott Square, Buffalo, for its proposed new mill at Lackawanna, N. Y., comprising one, two and four-story structures, estimated to cost $1,500,000 with machinery. J. G. Harding is general manager.

The Board of Education, Rochester, N. Y., contemplates the installation of manual training equipment in its proposed three-story Northeast high school at Hudson Avenue and Norton Street, estimated to cost $2,000,000. Gordon & Kaelber, Sibley Building, are architects. A similar installation is also projected in a three-story Northwest high school at Dewey and Ridgeland Avenues, to cost close to a like amount.

The additions to the plant of the Clark Brothers Co., Olean, N. Y., manufacturer of sawmill machinery, will consist of a foundry, 46 x 96 ft.; machine shop, 100 x 125 ft., and toolhouse, 40 x 90 ft.; each one-story, with entire expansion estimated to cost close to $100,000 including equipment. Joseph S. Reidy is president and treasurer.

The Barden & Robson Corporation, Penn Yan, N. Y., manufacturer of cooperage products, will soon ask bids on a general contract for a one-story plant, 85 x 150 ft., on Van Buren Street, Lockport, N. Y., to cost $100,000 with equipment. Plumer & Mann, 700 Main Street, Buffalo, are architects. George L. Barden is president.

The Board Street Public Market, Inc., Rochester, care of Walker S. Lee, Jr., Powers Building, architect, contemplates the installation of a refrigerating plant in its proposed one-story market building, 215 x 600 ft., estimated to cost $150,000.

The Reisinger Machine Tool Corporation, 839 Lake Avenue, Rochester, N. Y., has been organized with capital stock of $10,000 to manufacture a hollow mill tool and a two-in-one collet. It will also make standard and special collet feed fingers for all makes of machines; also all kinds of special tools and will do experimental work and general jobbing on small parts of machinery. Present equipment, the company advises, is sufficient for its needs. J. W. Ogley is secretary.

South Atlantic States

BALTIMORE, May 24.

BIDS will soon be asked by the Maryland Meter Works, Inc., 309 East Saratoga Street, Baltimore, manufacturer of gas meters, measuring equipment, etc., for a six-story plant, 80 x 200 ft., estimated to cost $260,000 with equipment. Theodore W. Pietsch, American Building is architect. W. S. Dickey is general manager.

The Board of Awards, Baltimore, Howard W. Jackson, president, is asking bids until June 2 for machinery for various industrial art shops in the local public schools, furniture and equipment for the Department of Education, and laboratory supplies. Specifications at the office of the Board of School Commissioners, Madison and Lafayette Avenues.

The Potomac Electric Power Co., 231 Fourteenth Street, N. W., Washington, is having plans prepared by Stone & Webster, Inc., 147 Milk Street, Boston, for an addition to its Bennings steam-operated power plant. The installation will include a 30,000-kw. turbo-generator, four boiler units, feed-water heaters, air preheaters and auxiliary equipment. The expansion is reported to cost in excess of $350,000.

Lewter F. Hobbs, Inc., Twenty-fourth Street and Monticello Avenue, Norfolk, Va., machinery dealer, has inquiries out for a combined punch and shear, Hendley & Whittemore type desired.

The Camilla Cotton Oil Co., Camilla, Ga., is considering enlargements in its seed-crushing mill and the installation of additional equipment.

The Board of Education, Anderson, S. C., is said to be planning the early rebuilding of the local boys' high school destroyed by fire May 16 with loss estimated at $125,000, the new structure to include a manual training department.

The Frederick Iron & Steel Co., Frederick, Md., is said to be in the market for a 24 to 30-in. swing lathe.

Fire, May 20, in the Canton district, Baltimore, destroyed portions of the plants of the Griffith & Boyd Co., Fourth Avenue and Clinton Street, and the Summers Fertilizer Co., on adjoining site, both manufacturers of fertilizer products, with losses of $400,000 and $300,000, respectively. Both companies are planning to rebuild. The same fire also damaged the works of the Baltimore Copper Smelting Co., with loss reported in excess of $75,000, which is likewise arranging to rebuild.

The Highland Park Sand Co., 1604 Grove Avenue, Richmond, Va., has been inquiring for one or more single-drum hoists, electrically operated.

The Screven Oil Mill Co., Sylvania, Ga., W. E. Hudmon, president, is in the market for a Diesel or semi-Diesel oil engine, about 100 hp.

The Triangle Agricultural Corporation, Marine Terminal, Wilmington, Del., has plans for a one-story addition to its fertilizer plant, 60 x 200 ft., to cost about $25,000 with equipment. C. C. Smith is president.

The Southern Brick & Tile Co., Dowd Road, Charlotte, N. C., recently formed to take over and expand the local plant of the Southern Brick & Tile Corporation, has plans for the erection of a new branch tile-manufacturing works at Greensboro, N. C., to cost in excess of $30,000 with machinery. A similar plant is also projected at Winston-Salem, N. C. J. J. Cantwell is president and treasurer.

The Hec Mfg. Co., 1205 Fourth National Bank Building, Atlanta, Ga., is making inquiries for a square shear, power or hand-operated, suitable for cutting sheet metal of No. 10 gage and lighter, up to 48 in. wide.

The Cinder Block Corporation, Baltimore, manufacturer of concrete blocks, etc., has work under way on an extension to double the present output. Considerable additional equipment will be installed.

The Charlotte Electric Repair Co., Charlotte, N. C., has inquiries out for a number of slip ring industrial type motors, including two 75-hp. capacity and one 50-hp. rating, 2200 volts, 3-phase, 60-cycle.

The Crane Market

THERE is a good volume of inquiry for both electric overhead and locomotive cranes and a fair number of purchases are reported this week. Among recent inquiries for overhead cranes is one from the Tannin Corporation, 100 East Forty-second Street, New York, for two 10-ton electric cranes, each with two 5-ton trolleys and one 5-ton electric crane, for a plant near Baltimore. The International Paper Co., 100 East Forty-second Street, New York, is about to close on a list of six overhead cranes for Canada; two 2-ton single I beam hand power, one 40-ton hand power, two 10-ton hand power or electric with alternate bid on two 5-ton hand power or electric and one 5-ton hand power crane. Other pending business includes two large overhead cranes and a gantry crane for the Phoenix Utility Co., 71 Broadway, New York, a bucket handling crane for the New York Edison Co., gantry cranes for the New York Central at Kingsbridge and Port Morris stations in New York and a small capacity crane for the West Philadelphia shops of the General Electric Co. Several purchases of locomotive cranes are reported this week and the crane for the Public Service Production Co., Newark, N. J., is reported about to be closed.

Among recent purchases are:

Long Island Railroad, a 25-ton, 67-ft. span, 4-motor gantry crane for Long Island City from the Milwaukee Electric Crane & Mfg. Co.

New York Edison Co., New York, a 5-ton hand power crane for East Fourteenth Street from an unnamed builder.

Standard Oil Co. of New Jersey, 26 Broadway, New York, a 20-ton hand power crane from an unnamed builder.

J. F. Cogan Co., Grand Central Terminal, New York, two 10-ton crawl-tread locomotive cranes from the Northwest Engineering Co.

New York Central & Hudson River Railroad, a 20-ton gantry crane for Rochester, N. Y., reported purchased from the Morgan Engineering Co.

American Forest Products Co., 292 Madison Avenue, New York, a 25-ton locomotive crane for Yarmouth Junction, Me., from the American Hoist & Derrick Co.

National Lumber & Creosoting Co., Houston, Tex., a 20-ton, 8-wheel locomotive crane from the American Hoist & Derrick Co.

Missouri Valley Bridge & Iron Works, Leavenworth, Kan., a 10-ton, 8-wheel locomotive crane from the American Hoist & Derrick Co.

Stone & Webster, Boston, a 25-ton locomotive crane for Conowingo power project, reported purchased from the Industrial Works.

United States Cast Iron Pipe & Foundry Co., Burlington, N. J., a 20-ton locomotive crane for use at Burlington, from the Browning Crane Co.

Boston & Maine Railroad, three standard railroad ditchers, from the American Hoist & Derrick Co.

Reading Co., Philadelphia, two standard railroad ditchers, from the American Hoist & Derrick Co.

Henry Mosser, Crellin, near Oakland, Md., is completing the construction of a new pulverized lime manufacturing plant to cost about $50,000 with machinery.

Plans for the proposed addition to the steam operated power house of the Savannah Electric & Power Co., Savannah, Ga., will be drawn by Stone & Webster, Inc., 147 Milk Street, Boston. The installation will include a 15,000-kw. turbo-generator, two boilers, surface condenser and auxiliary equipment. Equipment will be provided for the burning of pulverized coal. The project will cost more than $250,000.

R. P. Johnson, Wytheville, Va., machinery dealer, is making inquiries for a dragline cableway excavator, about ½-yd. capacity; also for a hand-operated band mill, about 7 ft. diameter.

The Common Council, Mount Tabor, N. C., plans the installation of deep-well pumping equipment in connection with the installation of a municipal water system. The J. B. McCrary Engineering Co., Citizens' and Southern Bank Building, Atlanta, Ga., is engineer.

R. B. Robinson, Athens, Ga., is desirous of getting in touch with a foundry in position to contract for the production of a quantity of brass and bronze castings for pipe fittings, such as used on air-pressure lines, etc.

The proposed hydroelectric power plant to be constructed on the Yadkin River, near Norwood, N. C., by the Carolina Power & Light Co., Raleigh, N. C., will be carried out by the Phoenix Utility Co., 71 Broadway, New York, an affiliated construction organization. It will cost more than $1,500,000 with transmission system. Both interests are operated by the Electric Bond & Share Co., 71 Broadway, New York.

Gulf States

BIRMINGHAM, May 24.

BIDS are being asked by the United States Engineer, Monroe, La., until June 10 for one steel water tank and tower.

The Consumers' Ice & Cold Storage Co., Orlando, Fla., has tentative plans for a new ice manufacturing and cold storage plant, to cost approximately $180,000 with machinery.

The Syndicate Power Co., Dallas, Tex., operated by Samuel Insull, head of the Commonwealth Edison Co., 72 West Adams Street, Chicago, and associated interests, has secured permission for the construction of six power dams on the Colorado River, between Austin and San Saba, Tex., for proposed hydroelectric power developments. Three of the stations will be located in Burnet County and two in Travis County, with gross estimated output of 122,700 hp. The complete project, including transmission lines, will cost in excess of $15,000,000.

The Sinclair Pipe Line Co., operated by the Sinclair Refining Co., 111 West Washington Street, Chicago, is planning for the construction of a new pipe line to the Graham Stewart oil fields, near Jacksboro, Tex. It also contemplates the construction of a storage and distributing plant at Jermyn, 16 miles from Jacksboro, with loading racks and other facilities.

The Florida Portland Cement Co., Tampa, Fla., has work in progress on its proposed local mill and expects to have the initial building units ready for the equipment installation at an early date. The plant will have a rated output of about 1,500,000 bbl. per annum, and is estimated to cost $3,000,000 with machinery. The Cowham Engineering Corporation, 111 West Monroe Street, Chicago, is engineer.

The City Council, Slidell, La., plans the installation of pumping machinery in connection with extensions and improvements in the municipal water and sewage systems, estimated to cost $175,000. J. W. Billingsley, Interstate Bank Building, New Orleans, is engineer.

The Texas Central Power Co., San Antonio, Tex., is considering the construction of a new ice manufacturing plant at Goliad, Tex., estimated to cost $60,000. The company is also projecting a new power plant at this place to cost close to $75,000. E. B. Neiswanger is general manager.

The City Council, Daytona Beach, Fla., Walter A. Richards, city manager, plans the installation of an electric pumping plant, using centrifugal units, in connection with a new water-softening and filtration plant at the municipal waterworks; oil-engine pumping units are also under advisement. Metcalf & Eddy, 14 Beacon Street, Boston, are engineers.

The Union Compress & Warehouse Co., Decatur, Ala., has completed arrangements for the purchase of the local plant of the Decatur Compress Co. Plans have been authorized for extensions and improvements, including the installation of additional machinery, estimated to cost $100,000.

The Texas Pacific Coal & Oil Co., Forth Worth, Tex., has secured a permit for its proposed oil refinery and will begin work soon. It is estimated to cost close to $400,000 including machinery.

The Florida Garden Land Co., 6 Fourth Street, South, St. Petersburg, Fla., A. D. Powers, president, has inquiries out for a 6-in. centrifugal pumping unit, direct-connected to gasoline engine for dredging service.

The Arkansas Oak Flooring Co., Pine Bluff, Ark., will erect a new plant at Alexandria, La., consisting of a main one-story mill, 90 x 290 ft.; warehouse, 120 x 192 ft., and other buildings, 90 x 127 ft., and 20 x 125 ft., with power house, to cost in excess of $100,000 including machinery. W. C. O'Briant is engineer in charge of construction.

The Board of Education, Brownsville, Tex., will soon begin the construction of a power plant for service at local schools, estimated to cost $45,000 with equipment. H. P. Smith, National Bank of Commerce Building, San Antonio, Tex., is engineer.

The Western Granite Works, Llano, Tex., is making enlargements in its mill, to include the installation of new polishing machinery and other equipment. Arrangements

are also being made for the electrification of the plant. H. C. Roth is manager.

The Phillips Petroleum Co., Bartlesville, Okla., has authorized plans for extensions in its gasoline refineries in the vicinity of Amarillo, Tex.; the plant in Hutchinson County, Panhandle field, will be doubled in capacity at a cost of close to $1,000,000, and a similar plant in Carson County will be increased in output at a cost of $500,000.

The Pratt Fuel Corporation, Dora, Ala., is contemplating the early rebuilding of the portion of its plant destroyed by fire May 6, with loss reported at $50,000 including equipment.

The South Jacksonville Utilities Co., South Jacksonville, Fla., has filed plans for a new ice manufacturing plant to cost $26,000 including equipment.

The Pinellas County Board of Public Instruction, Clearwater, Fla., contemplates the installation of manual training equipment in the proposed junior high school at Gulfport, Fla., estimated to cost $175,000, for which bids will be asked on general contract early in June. Emmett J. Hull, Magnolia Arcade, St. Petersburg, Fla., is architect.

The New Orleans Public Service, Inc., New Orleans, has disposed of a bond issue of $500,000, a portion of the proceeds to be used for extensions and improvements.

Chicago

CHICAGO, May 24.

THERE still remains before the trade a good volume of inquiry, which dealers anticipate may be closed this month. It would hardly seem, however, that enough buying will develop to make the month comparable in business closed either with April or the early months of the year. For the week, purchases have been very few in number, and have been confined mainly to individual tools. New inquiry is also disappointing to the trade, which has been basing hopes upon known requirements of users. No changes in prices are noted for the week and deliveries, especially on standard machine tools, are gradually growing better.

Railroad lists now outstanding include those of the Santa Fe, Rock Island, Illinois Central, Union Pacific and Northern Pacific. Of these, the lists of the Santa Fe and the Illinois Central appear to be the most active. The Northern Pacific is in the market for a large gang punch and a 10-ft. squaring shear. The International Harvester Co. has placed several additional tools against a list for its Rock Island plant. Demand for used machine tools is slightly more active, although users are primarily interested in smaller-size equipment, such as punch presses and drilling machines.

The Crane Co., 836 South Michigan Avenue, Chicago, has awarded a general contract to the William Adams Co., 209 South La Salle Street, for the proposed addition to its Corwith plant, to be one and three-stories and basement, 240 x 375 ft., to cost $400,000 with equipment. Graham, Anderson, Probst & White, 80 East Jackson Boulevard, are architects. R. T. Crane, Jr., is president.

The Illinois Power & Light Corporation, Merchants' Bank Building, Chicago, will soon begin the construction of a new steam-operated electric power plant at Venice, Ill., to cost more than $350,000 with equipment. Extensions will be made in transmission lines.

M. M. Fishman, 11 South La Salle Street, Chicago, architect, is completing plans for a one-story steel spring manufacturing plant at 2433 West Forty-eighth Street, owner's name temporarily withheld, to be 70 x 125 ft., to cost about $40,000 with equipment.

The City Council, Creede, Colo., is asking bids until June 5 for the construction of a municipal hydroelectric power plant. The Weiland Engineering Co., Thatcher Building, Pueblo, Colo., is engineer.

The Board of Education, Eureka, Ill., contemplates the installation of manual training equipment in its proposed three-story high school estimated to cost $150,000, for which bids will soon be asked on a general contract. Royer, Danely & Smith, Flatiron Building, Urbana, Ill., are architects.

The Cedar Rapids & Marion City Railway Co., 426 North Second Street, East, Cedar Rapids, Iowa, will soon begin superstructure for a new one-story car repair shop, 80 x 200 ft., to cost $90,000 with equipment. A two-story office adjoining will also be built.

A. S. Alschuler, 28 East Jackson Boulevard, Chicago, architect, is completing plans for a three-story and basement automobile service, repair and garage building, 160 x 400 ft., to cost $650,000 with equipment.

The Colorado Gear Mfg. Co., Denver, Colo., care of Edward Soderberg, 219 Guarantee Trust Building, has plans for a one-story factory, 50 x 103 ft., to cost $20,000 with equipment.

The American Hoist & Derrick Co., 63 South Robert Street, St. Paul, Minn., has filed plans for a one-story machine shop, for which a general contract has been let to Murphy & Son, Builders' Exchange Building.

The Broadway Buick Co., 5701 Broadway, Chicago, representative for the Buick automobile, has plans for a two-story service, repair and garage building, 60 x 150 ft., to cost $70,000 with equipment. Paul Hansen, 4646 Magnolia Street, is architect.

The International Steel & Iron Co., Chicago, has acquired property at Kedzie Avenue and Fifty-first Street, Kenwood district, totaling 64,400 sq. ft., and is completing plans for a one-story storage and distributing plant to occupy practically the entire site, estimated to cost in excess of $100,000, with handling, conveying and other equipment. S. Scott Joy, 2001 West Thirty-ninth Street, is architect.

Milwaukee

MILWAUKEE, May 24.

MACHINE-TOOL business in this market is in moderate volume with both manufacturers and dealers. Sales are again on the upgrade while inquiry is more active than it was in the latter part of March and throughout April. Orders consist mainly of single items, with users apparently holding down purchases to bare necessities. While textile and shoe industries have let down somewhat in employment, foundries and machine shops are inquiring for men in a way that is described as relatively brisk. Local sales of equipment are fair.

The Heil Co., Milwaukee, manufacturer of steel tanks, dump bodies, hydraulic hoists and other equipment, has broken ground for a machine shop extension, 100 x 300 ft., to be used principally for the production of hydraulic hoists. The company in the past year has enlarged its power plant, added a template shop, garage, and a new administration building. The total investment, including equipment, will exceed $350,000. The work is in charge of Klug & Smith, engineers and general contractors, Mack Block, Milwaukee. Julius P. Heil is vice-president and general manager.

The Fulton Co., Milwaukee, manufacturer of metal automotive equipment and accessories, has let the general contract to the Pfeifer Construction Co., 486 Sixty-sixth Avenue, for the erection of a brick and steel machine shop extension, 50 x 180 ft. About $75,000 will be invested in building and equipment. S. A. Fulton is president and general manager.

The Fuller-Warren Co., stoves and ranges, Milwaukee, has broken ground for an addition, 202 x 300 ft., of brick and steel, to be used mainly as an enameling shop. It is to be completed by Aug. 1 and the total cost will be about $125,000.

The Barnes-McGovern Co., Milwaukee, has been organized with $25,000 capital stock and will engage in the automotive, equipment and radio business at 686-688 National Avenue, where a building, 45 x 115 ft., part two stories and basement, will be erected at once. The architect is E. A. Meyer, 2703 Lisbon Avenue, and the general contract has been let to the W. M. Dooley Co., 744 National Avenue, local. George Barnes and Earl McGovern are the principals.

The T. M. C. O. Mfg. Co., Milwaukee, has been incorporated with $25,000 capital stock to manufacture machinery, tools, mechanical devices and appliances. The incorporators are John Traudt, 272 West Water Street, P. J. Mott and E. S. Meyer. A plant will be leased and production is expected to start early in June.

The International Harvester Co., 606 South Michigan Avenue, Chicago, has let the general contract to J. H. Findorff & Sons, Madison, Wis., for the erection of a $100,000 motor truck sales and service branch house at Madison, 120 x 150 ft. W. D. Price, Chicago, is company architect and building superintendent.

Esline Co., Milwaukee, has been incorporated with $200,000 preferred stock and 3000 common shares without par value as the development of the Eslien Co., 3028 Pemberton Avenue, manufacturer of steel garages, portable houses, steel stampings, heating apparatus, etc. There is no change in ownership or management. Byron F. Eslien is president and Eugene J. Eslien, secretary and treasurer. The product has been marketed for some time as Esline.

The Mount Horeb, Wis., Hardware & Implement Co., has plans by M. P. Schneider, architect, Madison, Wis., for an automotive sales and service building, 66 x 120 ft., part two stories and basement, to cost about $40,000 complete.

The Husky Wrench Co., Milwaukee, manufacturer of socket wrench sets and interchangeable soft tip hammers, has moved its factory from 928 Sixteenth Avenue to new quarters adjoining the plant of the Evinrude Motor Co., at Twenty-seventh and Florence Streets, Milwaukee. Considerable new equipment has been installed and additions are being made from time to time. John G. Zummach is president and treasurer.

New England

BOSTON, May 24.

THE latter part of May has found local machine tool sales at a low point. A decrease in new inquiries also is noticeable. Machinery dealers attribute the quietness to a slowing up in many New England industries, particularly those engaged in the manufacture of automobile parts. The largest sale reported recently included a locomotive axle lathe, a medium-size steam hammer, an axle lathe, a 32-in. and a 36-in. shaper, a boring mill with side head and a Chambersburg hammer to the Boston & Maine Railroad. The New York, New Haven & Hartford is reported to have closed on considerable sand blasting machinery for its Readville, Mass., shops, but has done nothing on a list of metal-working equipment under consideration for some time; neither has the Boston & Albany closed on tools for its West Springfield shop.

Buying of new equipment has been confined largely to single tools, mostly of minor importance. Used tools are less active than new, the largest individual transaction the past week being two milling machines and three planers to a New York State company. Not only have local sales of machine tools slowed up, but New England manufacturers of metal-working equipment report quite a decided drop in orders from other sections. Some types of milling machines and planers are difficult to obtain except on extended deliveries. Deliveries in general, however, appear to be easier. Activity is noted in pneumatic drop hammers. One maker has just sold three to a Greenfield, Mass., company, including a 500-ton and a 900-ton machine, and has placed three more in Meriden, Conn., and another in Providence, all 500-tons.

Sales of small tools are holding up well, although considerably below those of a month ago. Hill, Clarke & Co., Inc., Boston, has discontinued the agency for the Geometric Tool Co.'s line of small tools.

The Royal Typewriter Co., Hartford, Conn., has purchased four acres adjacent to its plant on which an addition will be erected. Plans have not been made public.

The Glendale Coal Co., Inc., 59 Medford Street, Charlestown district, Boston, has leased wharf property at 63-65 Medford Street from the American Agricultural Chemical Co., which it will occupy after alterations. Hoisting and mechanical equipment are required.

The Strand & Sweet Mfg. Co., Winsted, Conn., wire products, will increase its capitalization from $100,000 to $250,000 to provide funds for an addition. The company started business in 1920. Ralph E. Strand is president.

Fire last week did considerable damage to the plant, marine machinery and other equipment of the marine machine shop, Sabin's Point, Riverside, R. I., which is operated by William Sands, Providence, R. I.

The Cape Ann Tool Co., Pigeon Cove, Mass., is erecting a one-story, 65 x 135 ft. forge shop and boiler house. John O. De Wolf, 45 Bromfield Street, Boston, is the architect.

Ludwig Gleckner, North Bellingham, Mass., will erect a one-story, 48 x 55 ft. automobile repair shop. C. F. Springall, 84 Sprague Street, Malden, Mass., is the architect.

The Arter Grinding Machine Co., Worcester, Mass., broke ground last week for a one-story, 80 x 100 ft. plant, estimated to cost $20,000.

The Russell Mfg. Co., Middletown, Conn., will begin the erection of a one-story, 37 x 125 ft. manufacturing plant, the second to have been started this spring.

The National Co., 110 Brookline Street, Cambridge, Mass., has awarded a general contract to the Parkhurst Building Co., 1078 Boylston Street, Boston, for the proposed two-story addition to its machinery manufacturing plant, 45 x 100 ft., to cost close to $50,000.

The Pilgrim Motor Co., Walnut Street, Somerville, Mass., is completing plans for a one-story service, repair and garage building, 120 x 165 ft., on New Northern Artery, Felsway, to cost about $85,000. E. J. MacDonald, 77 Summer Street, Boston, is architect.

Fire, May 19, destroyed a portion of the wood-working plant of J. W. Ferguson & Co., Auburndale, near Newton, Mass., with loss reported at $30,000 including equipment. It is planned to rebuild.

The Central Maine Power Co., Augusta, Me., is disposing of a bond issue of $2,500,000, a portion of the proceeds to be used for extensions and improvements, including additional transmission lines.

The New England Lime Co., Adams, Mass., has engaged Dwight P. Robinson & Co., 125 East Forty-sixth Street, New York, engineers and contractors, to prepare plans for an addition, reported to cost in excess of $75,000 including equipment.

The Cambridge Electric Light Co., 46 Blackstone Street, Cambridge, Mass., has taken out a permit for extensions and improvements in its power house to cost about $100,000, with the installation of coal and ash-handling equipment forming a main feature of the work.

The Board of Trustees, Connecticut School For Boys, Colony Street, Meriden, Conn., has filed plans for a new power house to cost about $60,000 with equipment.

W. F. Barlow, Jr., 80 North Main Street, Brockton, Mass., architect, has plans for a one-story automobile service, repair and garage building, 65 x 145 ft., to cost $65,000 with equipment.

The Westinghouse Electric & Mfg. Co., Springfield, Mass., headquarters at East Pittsburgh, Pa., has taken out a permit for the erection of its proposed addition on the Page Boulevard, to cost about $70,000.

The Municipal Gas and Electric Department, Holyoke, Mass., will soon begin the construction of a new one-story steam power plant, to cost $43,000 with equipment.

George W. DeSemet, Everett, Mass., has leased a portion of the building at 210 Broadway, owned by the Everett Factories & Terminal Corporation, for a new plant for the manufacture of hard rubber products.

The New Britain Spring Co., 706 West Main Street, New Britain, Conn., manufacturer of steel springs, is completing plans for a one-story addition, 30 x 65 ft.

Pittsburgh

PITTSBURGH, May. 24.

ALONG with a very steady demand for single tools, local dealers also have profited from a distribution of orders by the Youngstown Sheet & Tube Co., for its Indiana Harbor works. This company has been buying steadily for some time and is now believed to have all of the equipment required for a large machine shop.

The Board of Education, Fulton Building, Pittsburgh, is considering the installation of manual training equipment in the proposed Herron Hill junior high school, estimated to cost $1,100,000, for which plans will be completed during the summer. J. T. Steen & Sons, Vandergrift Building, are architects.

The H. K. Porter Co., Forty-ninth Street and the Allegheny Valley Railroad, Pittsburgh, manufacturer of industrial locomotives, etc., is disposing of a bond issue of $1,000,000, a portion of the fund to provide for additional working capital and expansion. H. B. Ayers is president.

The Brockway Clay Products Co., Brockwayville, Pa., recently organized, has begun work on the initial unit of its new pipe and tile plant, to be four stories, 120 x 220 ft., and to give employment to about 75 men. Molding equipment, presses, conveyors and other machinery will be installed. It is expected to have the structure ready for service in the fall, when work will begin on other plant units.

The McKean Refining Co., 15 Kennedy Street, Bradford, Pa., F. F. Moore, president, has plans for an addition to its oil refinery in the Farmers Valley section, near Smethport, Pa., to cost in excess of $200,000 with equipment. It is expected to ask bids in June. H. S. Bell, Woolworth Building, New York, is consulting engineer.

The White Co., Cleveland, manufacturer of automobile trucks, has begun the construction of a new factory branch, service and repair building at 633 Eighth Street, Hunting-

ton, W. Va., two stories, 60 x 200 ft., to cost $65,000 with equipment.

The Walton-Sudduth Co., Bluefield, W. Va., has been inquiring for a ½-yd. capacity dragline cable-way excavator, complete with accessories.

The Akro Agate Co., South Chestnut Street, Clarksburg, W. Va., has plans under way for an extension and the installation of additional equipment to cost about $25,000. C. C. Grimmett is general manager.

The Penn Central Light & Power Co., Altoona, Pa., is reported to be planning the early construction of a new gas generating plant in the vicinity of Lewistown, Pa., to cost in excess of $150,000 including equipment. J. H. Shearer, is vice-president and general manager.

The Gulf Oil Burner Co., Frick Building Annex, Pittsburgh, has been organized as a subsidiary of the Gulf Oil Corporation of Pennsylvania to manufacture a line of domestic oil burners. Officers are: President, George H. Taber; vice-president, Charles B. Buerger; secretary, W. J. Guthrie; treasurer, J. E. Nelson.

Cincinnati

CINCINNATI, May 24.

THAT the machine-tool business will continue to be fairly satisfactory in the next three months and that appropriations already approved by certain buyers call for substantial expenditures for new equipment was the consensus of opinion of executives attending the semi-annual meeting of the Associated Machine Tool Dealers at French Lick Springs, Ind., the past week. While there naturally will be a falling off in the volume of sales during the summer, the lull will not reach abnormal proportions. Several executives, in discussing sales in the first five months of 1926, pointed out that purchases by automobile makers in that period were considerably ahead of those in the corresponding period last year, and that it is reasonable to believe the automotive industry again will resume buying on an extensive scale in the fall. In fact, business from that source the latter part of this year is expected to approach the volume reached in the last quarter of 1925.

Purchase of 10 standard lathes by an automobile company in the Detroit district was the outstanding order of the week in the local market. Another automobile maker in Michigan bought three lathes, and an Eastern manufacturer of electrical equipment took two machines. Six lathes for export to South America are reported to have been placed with a Sidney, Ohio, company. A railroad in Brazil is inquiring for 10 lathes, including one 40-in., two 36-in., two 26-in., one 18-in., three extension bed gap lathes and a portable lathe. The Chicago & North Western bought two 36-in. lathes from a local builder. The Northern Pacific is in the market for a 36-in machine. The Bethlehem Steel Co., purchased a 60-in duplex control borer from the Niles-Bement-Pond Co. The latter also booked a 53-in. tire mold mill for the Edgewater Steel Co., Pittsburgh.

The J. H. Day Co., 3256 Spring Grove Avenue, Cincinnati, has awarded a general contract to T. Hirschfeld, local, for a one-story addition to its machine shop.

The United States Engineer, P. O. Box 72, Louisville, is asking bids until June 14 for three steel maneuver boat hulls and derricks.

The City Council, Johnson City, Tenn., is considering the installation of pumping machinery in connection with proposed extensions and improvements in the municipal waterworks, estimated to cost $200,000.

The Department of Public Service, Dayton, Ohio, G. F. Baker, director, is preparing plans for a three-story and basement municipal equipment storage and distributing plant, 80 x 100 ft., with service and garage departments for city cars, estimated to cost $130,000.

The State Board of Education, Nashville, Tenn., has authorized the construction of five new buildings at the local Agricultural and Industrial School for negroes, estimated to cost $325,000. W. J. Hales is president, in charge.

The Knoxville-Buick Co., Knoxville, Tenn., representative for the Buick automobile, has plans under way for a two-story service, repair and garage building to cost $55,000 with equipment. Bauman & Bauman, 813 Market Street, are architects.

The Board of Education, Newport, Ky., contemplates the installation of manual training equipment in its proposed new high school at Eighth and Columbia Streets, estimated to cost $250,000, for which plans are being prepared by C. C. & E. A. Weber, Ingalls Building, Cincinnati, architect.

The Green River Chair Co., Livermore, Ky., is said to be planning the construction of a new mill to cost about $36,000 with equipment. A considerable portion of the structure will be used as a sawmill.

The Harrisonville Motor Co., Crossville, Tenn., will soon begin the construction of a one-story service, repair and garage building, 50 x 120 ft. A machine shop will be installed.

The Board of Education, Columbus, Ohio, will soon take bids for the construction of a manual training shop building at the Central high school, estimated to cost about $70,000. Howard D. Smith is architect for the board, 270 East State Street.

Cleveland

CLEVELAND, May 24.

MACHINE-TOOL inquiries improved somewhat the past week and dealers now regard the outlook more favorable than earlier in the month. Sales have kept up to about recent rather limited volume. Business is well scattered and few orders are for more than single machines. There has been little buying by the automobile industry the past week. While no railroad business is pending in this section, a local manufacturer is figuring on an inquiry from the Atlantic Coast Line for three or four turret lathes. The Niles-Bement-Pond Co. has taken an order from an Ohio steel plant for two 6-ft. Right Line radial drills.

The Timken Roller Bearing Co., Canton, Ohio, has announced plans for extensions which will involve an expenditure of more than $1,500,000 in buildings and equipment. Additional plant facilities will be provided largely for the manufacture of roller bearings for railroad cars.

The Lindsay Wire Weaving Co., 14025 Aspinwall Avenue, Cleveland, has placed a contract with the Boldt Construction Co., Cleveland, for a two-story addition, 52 x 165 ft.

The Carbox Sales Corporation, Marietta, Ohio, E. W. Hopp, manager, contemplates the erection of a four-story addition.

A. P. Schraner, 3338 Payne Avenue, Cleveland, manufacturer of metal patterns, has placed contract with the William Dunbar Co., Cleveland, for a one-story addition.

The Sawyer Gear & Mfg. Co., 5122 St. Clair Avenue, Cleveland, will build a two-story addition, 50 x 70 ft. W. R. Sawyer is president.

The Henkle Clauss Mfg. Co., Fremont, Ohio, manufacturer of cutlery and shears, is having plans prepared for an addition.

The Superior Motor Coach Body Co., Lima, Ohio, has placed contract with the Lima Construction Co. for a one-story addition, 60 x 490 ft. H. L. Breckenridge is president.

Detroit

DETROIT, May 24.

CONTRACT has been let by the Piston Ring Co., 500 Sanford Street, Muskegon, Mich., to the Strom Construction Co., Houseman Building, Grand Rapids, for a four-story and basement addition, 120 x 126 ft., to cost approximately $100,000. Charles E. Johnson is president.

The Board of Trustees, Michigan Normal College, Ypsilanti, Mich., has plans under way for a new power house at the institution. The work will be carried out in conjunction with a new library building, an appropriation of $250,000, being available for both structures.

The Detroit & Michigan Stove Co., 6900 East Jefferson Street, Detroit, has awarded a general contract to the Malow-Barry Co., 2631 Woodward Avenue, for its one-story addition, 75 x 100 ft., to be equipped as an enameling works. Charles Kotting, Dime Bank Building, is architect.

In connection with proposed extensions at its general assembly and finishing plant at Flint, Mich., the Chevrolet Motor Co., Flint, a division of the General Motors Corporation, Detroit, has adopted an expansion program for its group of seven plants. The work will include additions to the plant at Detroit, comprising forge, gear and axle works; addition to the small parts manufacturing plant at Bay City, Mich.; extensions to the gear and transmission equipment plant at Toledo, and expansion in the Fisher Body Co., affiliated organization, plants at St. Louis, Cincinnati

and Janesville, Wis. The complete expansion is estimated to cost close to $10,000,000, of which about $6,000,000 will be expended for machinery. Charles F. Barth, Flint, is general manager.

The Richard Brothers Die Works, 1560 East Milwaukee Avenue, Hillsdale, Mich., will soon ask bids for a new one-story plant, 35 x 90 ft., estimated to cost $70,000 with machinery. J. Lawson Miller, Goebel Building, Detroit, is architect.

Tentative plans are being considered by the American Vitrified Products Co., Jackson, Mich., manufacturer of sewer pipe, etc., for rebuilding the portion of its local plant destroyed by fire May 12, with loss reported in excess of $250,000 including machinery. Headquarters are at Akron, Ohio.

The Reliable Smelting Co., Grand Rapids, Mich., is contemplating the erection of a new plant unit to cost about $35,000 with equipment.

Nielsen, Inc., Lawton, Mich., has been incorporated with capital stock of $40,000, of which $32,600 is paid in, and has taken over the business of the Nielsen Barton Chuck & Tool Co. The new company will continue the manufacture of drill chucks and is also marketing the Nielsen ball bearing lathe center. F. S. Squiers is secretary.

Philadelphia

PHILADELPHIA, May 24.

PROPERTY near Union Landing, East Riverton, N. J., has been acquired by the Motor Equipment Co., 2216 Chestnut Street, Philadelphia, manufacturer of automobile parts, supplies, etc., as a site for a new plant to cost close to $60,000 with equipment. Plans will be drawn at once. Facilities will be provided for about 200 operatives.

The Bisbee Linseed Co., Drexel Building, Philadelphia, has awarded a general contract to the John N. Gill Construction Co., City Center Building, for rebuilding its five-story linseed oil mill, 100 x 150 ft., to cost about $150,000. It will replace a fire loss of several weeks ago. Edgar C. Bisbee is president.

Harold C. Irvin, Philadelphia, has awarded a general contract to the George Kessler Contracting Co., 1733 North Marvine Street, for a one-story machine shop at Wissahickon and Yelland Streets, to cost about $25,000.

S. S. Fretz, Jr. & Co., Twenty-third Street and Sedgley Avenue, Philadelphia, manufacturer of steam fitters' and plumbers' equipment and supplies, with branch plant at Boyertown, Pa., has acquired the plant and business of the Thomas Devlin Mfg. Co., Third Street and Lehigh Avenue, iron founder, specializing in the manufacture of hardware products, and will consolidate with its organization. General expansion in operations is planned.

The American Furniture & Cabinet Co., Philadelphia, has leased the building at 231 Race Street for a new plant.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, is planning for enlargements in its Pavonia yards at Camden, N. J., increasing the east yard from 263 to 526 cars capacity, and the west yard from 263 to 436 cars, to include the installation of hoisting, loading and other freight-handling equipment.

John J. Nesbitt, Inc., Philadelphia, care of the Ballinger Co., Twelfth and Chestnut Streets, architect and engineer, organized to manufacture ventilators and kindred metal products, has asked bids on a general contract for a new one and two-story plant at Rhawn Street and the State Road, reported to cost in excess of $75,000 with equipment.

Conveying machinery, motors, controls and other equipment will be installed in the two and three-story addition, 100 x 102 ft., to be erected at the printing plant of the J. H. McFarland Co., Third Street near Boas Street, Harrisburg, Pa., estimated to cost $200,000, for which plans have been drawn by the Ballinger Co., Twelfth and Chestnut Streets, Philadelphia, architect and engineer.

The Boyertown Burial Casket Co., Boyertown, Pa., is said to have plans under way for an addition to its plant to cost close to $25,000 with equipment.

The School District of Schwenksville, Pa., has plans under way for a new vocational high school to cost about $75,000, for which it is expected to ask bids soon. Watson K. Phillips, 213 South Fifth Street, Philadelphia, is architect.

The Hazle Brook Coal Co., Keffers, Schuylkill County, near Joliett, Pa., will soon begin the construction of a new coal breaker at its local anthracite properties, to cost more than $100,000 with machinery.

The Pennsylvania Power & Light Co., Allentown, Pa., has completed negotiations for the purchase of the Panther Valley Electric Co., Lansford, Pa., for $1,000,000 and plans extensions and improvements in this section. The company has also arranged for the acquisition of the Lehighton Electric Light & Power Co., Lehighton, Pa., for about $500,000, and is concluding details for the purchase of the Palmerton Lighting Co., Palmerton, Pa. Additions will be made, including transmission line and substation work.

The City Commission, Trenton, N. J., will soon begin the construction of a new municipal machine shop in conjunction with a two and four-story fire headquarters building. The complete project will cost close to $250,000 with equipment.

The Eyster-Weiser Co., York, Pa., manufacturer of iron castings, etc., has authorized plans for rebuilding its metal and wood pattern shop recently destroyed by fire. New equipment will be installed.

The Board of Education, New Castle, Pa., contemplates the installation of manual training equipment in its proposed two-story and basement high school, estimated to cost $130,000. Bids will be asked soon on a general contract. A. L. Thayer, Greer Building, is architect.

The Fisher Body Corporation, General Motors Building, Detroit, a subsidiary of the General Motors Corporation, has acquired the buildings of A. P. Merkel, farm implements, plumbing equipment, etc., in the vicinity of its plant at Fleetwood, Pa., and will use as a site for a new foundry and nickel-plating shop, to cost in excess of $80,000 with equipment. The Merkel organization is planning for the construction of a new storage and distributing plant in another part of the city.

The Automatic Centrifugal Co., 724 Victory Building, Philadelphia, has been organized to manufacture automatic centrifugals for sugar mills. Plans are being prepared for the construction of a shop, 50 x 200 x 75 ft., to be located in North Philadelphia. Meanwhile, it is having machinery parts made in other shops. Homer A. Herr, president, was awarded the Scott medal by the Franklin Institute of Philadelphia for his invention of the machine the company will manufacture.

The Boyertown Auto-Body Works, Boyertown, Pa., has taken over the Boyertown Carriage Works, same location, and will continue manufacturing commercial car bodies.

St. Louis

ST. LOUIS, May 24.

A BOND issue of $1,000,000 is being sold by the Moloney Electric Co., Seventh and Hickory Streets, St. Louis, manufacturer of electric transformers, etc., a portion of the proceeds to be used for expansion. Through its subsidiary, the Moloney Realty Co., the company has acquired 10 acres on Bircher Street, near Union Avenue, as a site for a new plant to cost approximately $1,000,000. Facilities will be installed for the manufacture of larger transformers than made heretofore, designed particularly for central station service. The company is controlled by the American Brown-Boveri Electric Corporation, New York. T. O. Moloney is president.

The R. & S. Motor Co., Joplin, Mo., has acquired the four-story building at 214 East Fourth Street, and will remodel for a new service, repair and headquarters building. The third floor will be equipped as a machine and repair shop, with facilities for parts production, etc.

The Hinderlites Tool Co., 14 North Madison Street, Tulsa, Okla., has filed plans for a one-story addition, 35 x 120 ft.

The Common Council, Atkins, Ark., plans the installation of a pumping plant in connection with a proposed municipal water system. The Board of Water Commissioners is in charge.

The Broad-Walnut Garage, Inc., 500 Walnut Street, St. Louis, William King, president, is completing plans for a six-story service, repair and garage building, 160 x 215 ft., to cost $250,000 with equipment.

The Hot Springs Mineral Earth Co., 323 Cumberland Street, Little Rock, Ark., has leased a two-story building, 50 x 100 ft., and will install equipment for the production of powders from talc, including grinding and pulverizing mills, screens, motors and other machinery. C. C. Nix is president.

Motors, ovens, conveying machinery and other equipment will be installed in the new two-story and basement plant, 115 x 145 ft., to be erected on Chouteau Avenue, St. Louis, by the Freund Bread Co., 4477 Chouteau Avenue, estimated to cost $115,000.

The Stinson Adding Machine Co., 321 South Grand Avenue, St. Louis, H. S. Stinson, president, has plans under way for a two-story and basement factory, 60 x 245 ft., to cost about $90,000 with equipment. C. L. Thurston, 130 Kenilworth Street, Webster Groves, Mo., is architect.

J. Babler, 1909 Railway Exchange Building, St. Louis, and associates have plans for a one and two-story automo-

bile service, repair and garage building, 210 x 275 ft., estimated to cost $100,000 with equipment.

The Common Council, Chickasha, Okla., plans the installation of pumping equipment in connection with a proposed municipal waterworks to cost about $125,000. Robert O. Bradley & Co., Chickasha, are engineers.

Pacific Coast

SAN FRANCISCO, May 19.

PLANS are being considered by the Security Portland Cement Co., San Bernardino, Cal., for enlargements in its mill at Devore, Cal., including improvements in present plant and installation of additional machinery, reported to cost in excess of $100,000. The company was recently reorganized.

The Illinois-Pacific Glass Co., Fifteenth and Folsom Streets, San Francisco, manufacturer of bottles, etc., is completing plans for a six-story plant, 193 x 250 ft., to cost approximately $550,000 with machinery. P. D. Burtt is company engineer in charge of construction.

The Chandler Ice Co., Chandler, Ariz., will build an addition and make improvements to the present plant. Additional machinery will be installed. E. G. Grasty heads the company.

The Consolidated Engineering & Construction Co., Tucson, Ariz., is said to have preliminary plans under way for a new cement mill in the vicinity of Tucson, for an Eastern company, name temporarily withheld, to cost in excess of $800,000 with machinery.

The Pacific Rolling Mill Co., San Francisco, will begin the construction of a new one-story shop at Seventeenth and Mississippi Streets, 130 x 180 ft., estimated to cost $30,000.

The Southern Pacific System, Santa Barbara, Cal., will make extensions and improvements in its local locomotive shop and engine house to cost about $35,000.

The Western States Gas & Electric Co., Stockton, Cal., has secured permission to use waters from Silver Fork, Eldorado County, for a proposed hydroelectric power development with initial capacity of 28,000 hp. A transmission system will also be built.

The Crown-Willamette Paper Co., 248 Battery Street, San Francisco, has awarded a general contract to the Lindstrom & Feigenson Co., Worcester Building, Portland, for two two-story additions to its mill at Camas, Wash., comprising additions to the beater department and finishing division, respectively, estimated to cost $160,000 with equipment.

The City Council, Aberdeen, Wash., has called a special election on June 29 to approve a bond issue of $2,000,000, the fund to be used for a proposed municipal hydroelectric power plant on the Wynooche River. A site has been secured and plans will soon be completed.

The Common Council, Estacada, Ore., plans the installation of pumping machinery in connection with a proposed municipal water system to cost about $40,000. Stevens & Koon, Spalding Building, Portland, are consulting engineers.

The Great Northern Railway Co., St. Paul, Minn., has applied for permission to use waters from Deception Creek, Cascade Mountain district, Snohomish County, Wash., for a proposed hydroelectric power plant, with capacity of 11,500 hp., for service in connection with the electrification of its lines in this section.

The Baldridge Packing Co., Inc., Los Angeles, will install a refrigerating plant and build a power house at its proposed two-story packing plant at 1303 East Vernon Avenue. The entire project will cost approximately $50,000.

The Pacific Wire Products Co., 1955 East Sixteenth Street, Los Angeles, is enlarging its plant to the extent of about $6,500.

Indiana

INDIANAPOLIS, May 24.

BIDS will be asked at once by the Absolute Contracting Co., Elkhart, Ind., heating and electrical equipment, etc., for a one-story plant, 200 x 400 ft., sawtooth roof type, estimated to cost $45,000 with equipment. Hubert Miller, Monger Building, is architect.

The May Contracting Co., Evansville, Ind., is said to be in the market for several steel barges for use on the Ohio River.

The Hart Glass Co., Dunkirk, Ind., has begun the construction of a one-story addition, 80 x 100 ft., reported to cost about $25,000.

The Indiana Truck Corporation, Marion, Ind., manufacturer of motor trucks, is disposing of a preferred stock issue to total $468,750, a portion of the proceeds to be used for expansion and additional working capital.

The Radio Cabinet Co., 2122 Gale Street, Indianapolis, is completing plans for a new two-story factory, 100 x 160 ft., to cost $45,000 with equipment.

The Board of School Trustees, Howe, Ind., will soon begin the construction of an addition to its local school to include a manual training department, estimated to cost $65,000. A. H. Ellwood & Son, Haynes Building, Elkhart, Ind., are architects.

The Knox Consolidated Coal Co., Indianapolis, is reported to be planning to rebuild the tipple at its Westphalia mines, near Vincennes, Ind., destroyed by fire May 14, with loss estimated at $50,000 including equipment.

The Willis Storage Battery Co., Terre Haute, Ind., has plans for a one-story machine and repair shop, 25 x 100 ft., at Eighth and Poplar Streets, for which foundations will soon be laid.

The Schwab Safe & Lock Co., Lafayette, Ind., is contemplating the erection of an addition on East Main Street, on which work will probably begin in the fall. Frank Loefler is general manager.

The Board of School Trustees, Vincennes, Ind., has plans under way for a new steam power house for local school service, and expects to ask equipment bids soon. Snider & Rotz, Merchants' Bank Building, Indianapolis, are architects.

The Monon Township Board of Education, Monon, Ind., contemplates the installation of manual training equipment in its proposed two-story and basement high and grade school addition to cost $90,000, for which bids have been asked on a general contract. Samuel Young, Monticello, Ind., is architect and engineer.

Vonnegut, Bohn & Mueller, Indiana Trust Building, Indianapolis, architects, have plans for a two-story automobile service, repair and garage building, 95 x 300 ft., at 24-30 West Twenty-seventh Street, to cost about $85,000 with equipment.

The Chicago & Eastern Illinois Railway Co., Chicago, has authorized the construction of a new locomotive repair shop at Evansville, Ind., consisting of machine shops, engine house and other structures, to cost $450,000 including equipment. Facilities will be provided for more than 250 operatives.

The Shelbyville Desk Co., Shelbyville, Ind., has awarded a general contract to the Robert Berner Steel Co., Indianapolis, for a three-story addition, 70 x 160 ft., to cost $50,000. William Robertson is superintendent of construction.

Canada

TORONTO, May 24.

MACHINE-TOOL buying the past week was restricted largely to scattered orders for single tools which, however, reached a good volume. Some buying from the automotive industry was reported, but demand on this account has not fully recovered from the slump caused by the reduction in the tariff affecting this industry. A brisk call for single machines and miscellaneous small tools for garages and automobile repair shops is reported throughout this section of the country. Inquiries include both new and used equipment.

Plans are being prepared by N. A. Armstrong Co., Ltd., 7 King Street East, Toronto, for the erection of a pump house on Rouge River, for C. White & Co., 92 Church Street.

The Maritime Electric Co., Queen Street, Fredericton, N. B., proposes to make alterations to its plant on Shore Street, and install some additional equipment. Work will start early in June an cost about $20,000.

A number of contracts have been awarded in connection with the building of a lead and zinc plant at Kingdon, Que., to cost $1,500,000 for the Kingdon Mining, Smelting & Mfg. Co., Ltd., 314 Beaver Hall Hill, Montreal.

The Lincoln Pulp & Paper Co., Merritton, Ont., has started work on an addition to its mills.

The Columbus Rubber Co., 1349 Demontigny Street East, Montreal, is building an addition to its plant. William Irving, 671 St. James Street, is the general contractor.

The Northern Bolt & Screw Co., Owen Sound, Ont., is building an addition to its plant and will require some additional equipment.

Anglin, Norcross, Ltd., Temple Building, Toronto, has the general contract and the Canadian McArthur Concrete Pile Co., Montreal, the pile contract in connection with

the erection of engine and car shops for the Canadian National Railways at Toronto.

Wells & Grey, Ltd., Confederation Life Building, Toronto, has the general contract for the erection of a $90,000 condenser building for the Consumers' Gas Co., 19 Toronto Street.

The Nepisquit Power Co., Fredericton, N. B., a subsidiary of the Bathurst Co., Ltd., is contemplating building an addition to its power development plant on the Nepisquit River. It is proposed to develop an additional 22,000 h.p.

Steel Gates, Ltd., has been formed as a subsidiary of the P. Lyall & Sons Construction Co., Ltd., Montreal, to handle the $4,500,000 contract recently received for steel gates for the Welland Canal. E. S. Mattice is general manager of the new company.

The city of London, Ont., is contemplating the purchase of a waterworks pump to handle about 1,000,000 gal. per day. E. V. Buchanan, is general manager of the Utilities Committee.

Western Canada

Fire, May 19, which started in the foundry, caused damage to the plant of the Manitoba Steel Foundry, Selkirk, Man., estimated at between $300,000 and $400,000. The chemical laboratories and warehouse were also destroyed. While no definite announcement has been made, it is expected that the owners will rebuild.

The Maybilt Radiators, Ltd., Sherbrooke and Wolseley Streets, Winnipeg, have awarded the general contract to G. McCoubrey, 154 Munroe Street, for the erection of a manufacturing plant to cost $10,000.

Foreign

THE State Electricity Commission of Victoria, Melbourne, Australia, is asking bids until June 28 for a quantity of 22,000-volt electric transformers, with spare parts, etc. Specifications on file at the offices of the Bureau of Foreign and Domestic Commerce, 734 Customhouse, New York, and 76 West Monroe Street, Chicago.

The National Railways of Mexico, Mexico City, is planning for extensions and improvements in its ore docks and shipping facilities at Tampico, to include the installation of ore bins on large tract of wharfage, electric conveying machinery, loading and unloading equipment, etc.

The State Cabinet, New South Wales, Australia, has authorized the construction of a new floating dock at Newcastle, to cost in excess of $1,300,000 with equipment. The project is expected to require about 36 months for completion. Information at the office of the Bureau of Foreign and Domestic Commerce, Washington, reference 206778.

The Export World and Commercial Intelligence, 8 Bouverie Street, London, E.C.4, England, has received an inquiry (E-4587) from a company in Spain desiring to get in touch with manufacturers of machinery for the production of wire products.

The State Department, Bucharest, Roumania, is said to have preliminary plans under way for the construction of two 5-in. pipe lines for oil transmission from Ploesti, a refining center, to Constantza, on the Black Sea, estimated to cost about $2,400,000. The Department has also arranged a fund of about $40,000 for improvements in existing pipe lines between these two points and the installation of additional pumping machinery. The American Consulate, Bucharest, Sprouli Fouché, acting commercial attaché, has information regarding the projects.

The city of Sydney, Australia, is asking bids until July 12 for a quantity of single phase, oil-cooled, electric power transformers; specifications on file at the office of the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, reference Exhibit-Australia-204759.

Gonzalo D. Ricaurte, Calle 8 Pasto, Colombia, S. A., engineer, is desirous of getting in touch with American manufacturers or exporters of electric generators, electricians' tools, electric toys, hydraulic turbines, isolated lighting plants and kindred equipment.

S. H. J. Mistary, 249 Eruchshaw Building, Hornby Road, Fort., Bombay, India, who writes to THE IRON AGE that he has a wide circle of business acquaintances and a thorough knowledge of the markets in India, desires to represent American manufacturers of hardware and tools. He offers as reference the Mercantile Bank of India, Ltd., Bombay. He advises that he was for six years connected with a well known American tool manufacturer, as a representative in India.

Trade Notes

The Engineering Sales Corporation has been established in the Perry-Payne Building, Cleveland, by E. A. Smith, who, for the past ten years, has been sales engineer with the Hill Clutch Machine & Foundry Co. Sales service as contracting engineer and distributer of industrial equipment will be given in connection with power transmission machinery, speed reducers, elevating and conveying appliances, cranes and hoists of various types, handling and production equipment of all kinds, motors and various accessories, and new and used machinery.

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Hillsmith & Co., Dayton, Ohio, have been incorporated to take over the engineering and general contracting work formerly done by Frank Hill Smith, Inc. Officers will be elected soon.

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The Bissett Steel Co., Cleveland, has purchased a three-story brick warehouse and office building at 947 East Sixty-seventh Street and will carry all kinds of steels and Cumberland ground shafting. It has been in business six years. George Bissett is president.

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The Pittsburgh Insulating Co. has removed its offices and all operations from Pittsburgh to the new plant, 701 Fourth Avenue, Coraopolis, Pa.

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To afford additional manufacturing space for the Delco Light Co., subsidiary of General Motors Corporation, part of the work now being done in the Delco plant at Dayton, Ohio, will be transferred to the plant of the Remy Electric Co., Anderson, Ind., also a General Motors subsidiary. Part of the work formerly done at the latter location will be carried on at Dayton. In arranging for the change provision was made for no decrease in the combined production of the Remy and Delco plants. C. E. Wilson, formerly in charge of the Remy Electric Co., has been made general manager of the combined units.

Financial Items

Net income of Allis-Chalmers Mfg. Co., in the first quarter, was $828,401, equivalent after preferred dividends to $2.09 a share on common stock. This compares with $847,053, or $2.17 a share, in the first quarter of 1925. Total sales billed were $7,328,018 in 1926 against $7,130,952 last year and $6,819,330 in 1924. Unfilled orders March 31 last were $10,787,000, compared with $10,146,675 a year before. Bookings for the quarter were $7,967,817, compared with $7,153,599. Bookings in April totaled $2,993,000.

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Net income during the first quarter for the American Steel Foundries is reported at $1,339,041, equivalent after preferred dividends to $1.31 per share on common stock. This compares with $1,388,636, or $1.70 per share, a year ago, and with $909,932 in 1924. The plants were reported operating at about 75 per cent, as compared with 60 per cent at the beginning of the year. The current rate was expected to be maintained through the second quarter.

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THE LAST WORD

"LET'S see who's dead." Ask any small town newspaper editor how he rates the obituary column in interest value, and the chances are he will answer, "Very high."

Ask any trade paper editor the same question and you will get the same answer. But the "obit" page in the trade paper is not always read merely for the purpose of keeping informed of changes in the field. Some ambitious individuals, allowing no opportunity for advancement to escape them, see the words "Positions Vacant" at the top of the page, and act accordingly.

How times change! Only a few short years ago damning the railroads was a popular pastime, and now our leading citizens vie with each other in praising the railroads for their efficiency. "The comments on our service are so laudatory that we are continually blushing like a June bride," said a railroad man the other day.

Incidentally a new record in freight transportation was made in the first quarter of this year, the net ton mileage reaching nearly 112 billions. And this with fewer locomotives than were in service a year ago!

"There was a time when I regarded every minute spent in the office as time virtually wasted," a steel sales executive said to me the other day. "I got all my business," he continued, "calling on the trade. But now I'd no more think of leaving the office untenanted than of allowing Walter Hagen a stroke a hole. I get a great deal of business over the telephone these days, and they invariably want the steel in a hurry. It used to be, 'Can you ship in a month or two?' Now it's, 'If you can't get it off to us by next Friday, you don't get the order.'"

Not so long ago the purchasing agent would have had heart failure if he found he had only enough raw material in stock to last a week or two. Now he deliberately works toward low stocks, putting his faith in the mills and the railroads.

Henry Ford says the first thing he would do if he took over an ailing manufacturing concern would be to clean the plant from top to bottom.

Cleanliness is next not only to godliness but to profits as well, believes the man who is successful in the automobile, railroad, aircraft, air-making, and perhaps some more varied businesses. And as he seems to be making money, he is probably right.

But let us hope that there are some exceptions. When the steel mill and the foundry become as bright and shiny as a Child's restaurant, farewell romance!

Perhaps you noticed the picture of Moccasin Bend of the Tennessee River in THE IRON AGE of May 13. A man with a long memory recalled the day when this same scene formed the background for a photograph of a group of notables. He found the photograph, sent it in, and here it is. A. H. D.

THE gentlemen who seem to be risking life and limb are, (left to right) C. E. Buek, then president Chattanooga Iron & Steel Corporation; President James A. Farrell, United States Steel Corporation; Capt. C. D. Mitchell of Chattanooga Plow Co. (now a branch of the International Harvester Co.); F. A. Burr, then general sales manager Tennessee Coal, Iron and Railroad Co.; Paul J. Kruesi, president Southern Ferro Alloys Co.; (in front) Capt. H. S. Chamberlain (since deceased), president of Citico Furnace Co. and Roane Iron Co., Chattanooga. The date was Oct. 31, 1914, and the scene, Lookout Mountain, near Chattanooga, looking toward Moccasin Bend.